



First Aero Weekly in the World.

Founder and Editor: STANLEY SPOONER.

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THE KING'S MESSAGE TO THE ROYAL AIR FORCE

To the Right Hon. LORD WEIR, Secretary of State and President of the Air Council.

In this supreme hour of victory I send greetings and heartfelt congratulations to all ranks of the Royal Air Force. Our aircraft have been ever in the forefront of the battle; pilots and observers have consistently maintained the offensive throughout the ever-changing fortunes of the day, and in the war zones our gallant dead have lain always beyond the enemies' lines or far out to sea.

Our far-flung squadrons have flown over home waters and foreign seas, the Western and Italian battle lines, Rhineland, the Mountains of Macedonia, Gallipoli, Palestine, the plains of Mesopotamia, the forests and swamps of East Africa, the North-West frontier of India, and the deserts of Arabia, Sinai and Darfur.

The birth of the Royal Air Force, with its wonderful expansion and development, will ever remain one of the most remarkable achievements of the Great War.

Everywhere, by God's help, officers, men and women of the Royal Air Force have splendidly maintained our just cause, and the value of their assistance to the Navy, the Army, and to Home Defence has been incalculable. For all their magnificent work, self-sacrifice, and devotion to duty, I ask you on behalf of the Empire to thank them.

GEORGE R.I.

November 11, 1918.

Flight

and The Aircraft Engineer.

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CONTENTS.

	PAGE
Editorial Comment :	
Peace and its Problems.. ..	1272
The Question of Fiscal Policy	1274
The Labour Question	1274
Aeroplanes after the War	1275
The End of the War!	1275
The Armistice	1276
Honours	1278
The Gotha Bomber	1280
The Royal Aero Club. Official Notices	1283
The Roll of Honour	1283
The Austrian Berg Single-Seater	1285
The 200 h.p. Austro-Daimler Aero Engine	1288
Correspondence	1294
Airisms from the Four Winds	1295
Personals	1298
The Royal Air Force.. ..	1301
Aviation in Parliament	1301
Aircraft Work at the Front. Official Information	1305
Side Winds	1306
Company Matters	1306

EDITORIAL COMMENT.

" Newspapers are an essential part of our war organisation."

(Sir Auckland Geddes, Minister of National Service.)



WITH the acceptance of the Allies' armistice terms on Monday by our last and most powerful enemy, the War has come to a triumphant end. It is full soon to talk about the past. That must be left to the historian and the student. What we are most concerned with are the problems which will arise out of the passing from war to peace. These will be many and difficult of solution—so many and so difficult that we are almost at a loss to know where to start. Nor is it of any avail to leave any of them to settle themselves as they are reached. Each one must be foreseen and the proper measures taken for dealing with it before it arises, else we shall find that the affairs of the nation have fallen into a state of chaos far worse than any that followed the sudden entering into a state of war.

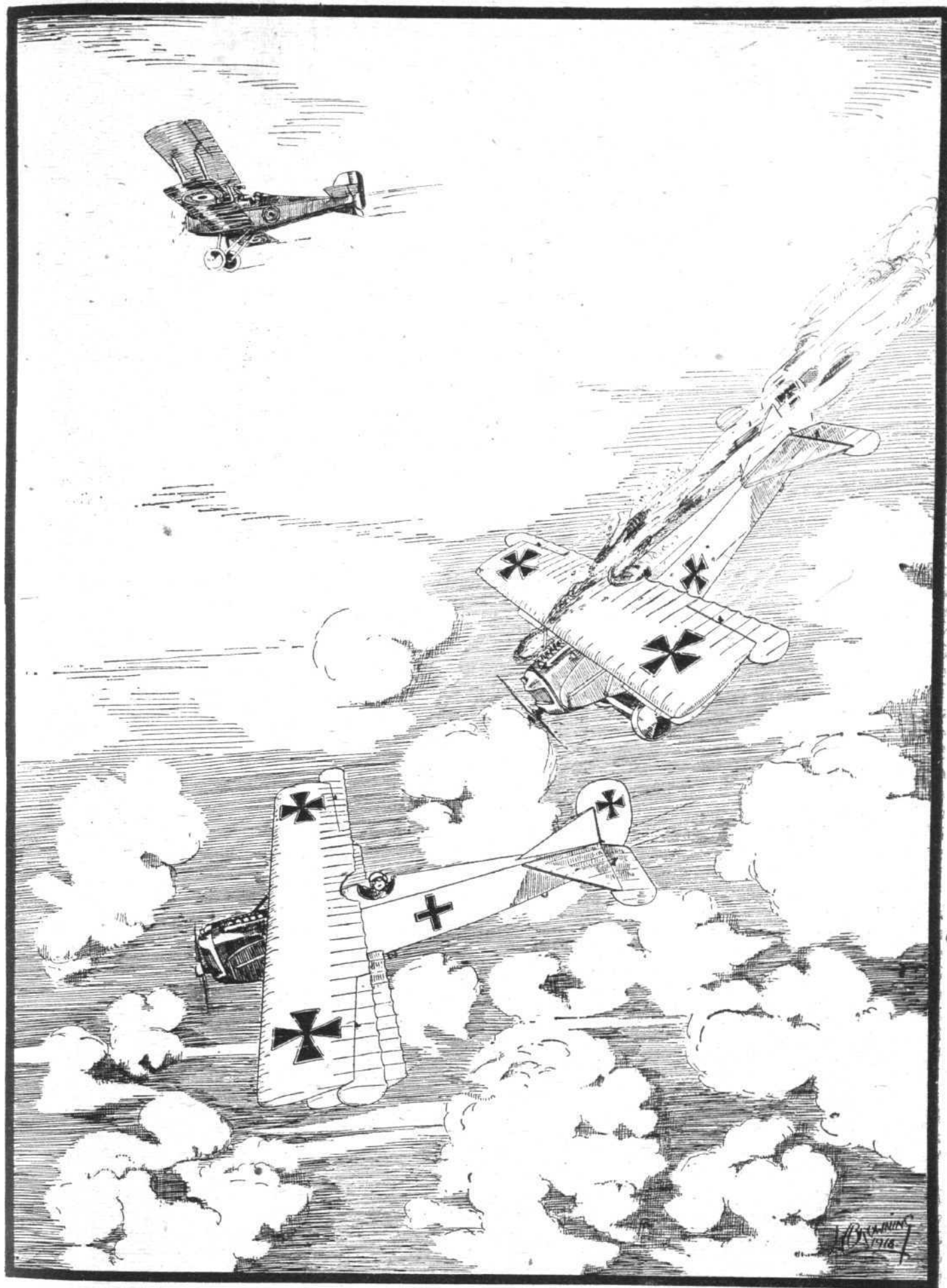
In this connection it may be premised that a good deal will necessarily depend upon the precise settlement of the main questions raised by the War itself. We are in a state now of suspended hostilities—not of final peace. True, we have imposed such terms on the enemy that render it utterly impossible for him to resume the War, but we must in nowise lose sight of the fact that the real position is this: The soldiers have done their part in reducing the enemy to a state of impotency in which he is prepared to be told what we will have him to do and to do it, but now comes the turn of the politicians and the diplomatists, who have it in their power to undo all that our arms have secured for us. Let it be said at once that we do not for a moment suppose that there is any likelihood of the extreme happening, but we are by no means so certain that the civilian representatives who will draw up the final terms are as determined to punish

Germany to the utmost for her crimes as the country would have them. They have vouchsafed us nothing but generalities so far, while the country asks for specific assurances. For example, do they intend that Germany shall be called upon to foot the whole of the War bill? The War has cost in hard cash expenditure over £60,000,000,000, spread among all the belligerents. Over and above that gigantic sum is the bill for the damage done by the enemy's armies in occupied territories, the exact figure of which we do not know yet. Who is to pay this? Germany began the War as an aggressor, and we know precisely what would have happened in the matter of indemnities if she had won. Is there any reason why she should be treated any more tenderly than she would have dealt with a defeated Entente? There is none, and what is more, the people of this country do not intend that she shall. We have not the slightest hesitation in saying that our considered opinion is that if our statesmen lend colour to the theory of the "Hidden Hand" by attempting to let Germany down lightly in the matter of paying for the War, they will be risking a grave upheaval which may carry away with it many of our most cherished institutions.

We do not know how much authority Mr. Hughes, the Australian Prime Minister, has for his statement made the other day that the terms of peace have already been settled, and that we have, therefore, to deal with an accomplished fact. There has been a guarded official explanation of the proceedings in connection with the settling of the terms, but that has really told us nothing at all, save that the Dominions have been given an opportunity of sharing in the discussion. Mr. Hughes says that the terms have actually been communicated to the Dominion Governments, so we may accept it that they have been settled. He goes on to say that he objects to the terms because *they do not provide for indemnities*. While provision is made for restoration and reparation in some fashion, none is made for indemnity. He puts the case well by saying:—

" Why should not Germany at least help us to pay the cost of this war? Is war to be made so attractive that every nation shall say, 'Germany failed, but she failed only by a hair's breadth. But for a miracle she would have succeeded, and the world would have been hers. She failed, and what is the penalty she paid? Her sword was broken; she was disarmed; she was compelled to make some sort of reparation. But, while she laid the world in ruins, her country escaped the horrors of war, and she paid not a penny by way of contribution to the huge burden of debt which she imposed upon the peaceful nations of the world.' If this is not an inducement to make war, what is? Let the German people work out their salvation by deeds. Let them pay. That will be the greatest deterrent. It will be a deterrent that will show to the citizens of every country that they who make war will not only be broken on the wheel, and their power to make war taken away, but that they will be made to pay to those who are compelled to defend themselves the full cost of that defence."

We confess we view the position with the gravest misgivings. As we have said, by letting Germany off the penalty for her crime the Government is playing with fire. However stern the terms we give to the beaten enemy, whatever we exact from him by way of payment on account of the cost of the War, we shall be faced with a sea of trouble during the period of transition which will take all the skill, all the statesmanship we have available to navigate safely. If there is the slightest trace of the influence of the "Hidden Hand," it will not avail, and the future will hold a grave menace to our established institutions.



DEEDS AND THEIR RECOGNITION.—From the *London Gazette*: "Awarded the D.S.O. Lieut. (T. Capt.) James Ira Thomas Jones, M.C., D.F.C., M.M.—Since joining his present Brigade in May last this officer has destroyed 28 enemy machines. He combines skilful tactics and marksmanship with high courage. While engaged on wireless interception duty he followed a patrol of nine Fokker biplanes, and succeeded in joining their formation unobserved. After a while two Fokkers left the formation to attack one of our artillery observation machines. Following them, Captain Jones engaged the higher of the two, which fell on its companion, and both machines fell interlocked in flames."

To say more than this would be wrong at the moment, but we doubt not the thinking person will be able to discern the things we have in mind.

The Question of Fiscal Policy

Last week we spoke of the need that exists for a clear enunciation of policy regarding fiscal questions, precedent to any useful work of commercial reconstruction being possible. Mr. Hughes elaborates the point by referring to Clause 3 of President Wilson's Fourteen Points, of which we have heard so much. The requirements of this clause embody: "The removal, so far as possible, of all economic barriers and the establishment of an equality of trade conditions among all the nations consenting to the peace and associating themselves for its maintenance." Very pertinently he asks what this means. Does it mean that we are to admit Germany to an equality in the use of and access to our home and overseas markets? That is the interpretation that can be put upon it, and if it does in fact mean that, then here again the politicians are playing with fire. We believe we are correct in our interpretation of the public opinion of this country and of the Dominions beyond the seas when we say that we will have nothing of the sort. President Wilson has himself explained that it means that the power of extending differential treatment to one nation or another is taken away, or will be taken away. That is to say, our power of discrimination between our enemies and our friends is to be removed, if this clause of the Fourteen Points is to stand. It compels us to grant the same privileges to Germany that we should be willing to give to France! Nothing is farther from the thoughts of the people of this country than that we should be compelled to admit the unspeakable Hun to our midst on most-favoured nation terms. It may be that our own statesmen do not intend to let such conditions pass without challenge, but, on the other hand, we have the direct statement of Mr. Hughes that this is what is more or less contemplated. It will not do at all, and unless the Government desires to become involved in something approaching a cataclysm it had better call a halt. We have fought this war in order that there should be no more secret bargaining between the nations. It is the country that has paid the bitter bill in life and treasure, and it is the country that has the right to say on what terms the settlement shall be. We were told by that master of cynical evasion, the Chancellor of the Exchequer, the other day that the Government must be the interpreters of the feeling of the country. The great trouble is that Mr. Bonar Law and his colleagues appear to be completely out of touch with the feeling they profess to be able to interpret. They tell the country nothing of their intentions regarding the arch-enemy. All they say is that we "do not intend that there shall be another Hundred Days," and they feed the nation on such-like pious platitudes, what time the community is asking, as it has the most absolute right to ask, for specific assurances that the settlement will be one of which the country approves and is determined shall be brought about. There is far too much of the atmosphere of Dora about—nothing may be said for fear of hurting the feelings of the Hun. If the Government would only take the trouble to get the real feeling of the country, it would begin to realise that these are not matters which can be got rid of by

departmental orders and regulations under Dora. The country wants to know in advance what the terms of peace are going to be, so that it may express its views before it is confronted with accomplished facts. Unless it does know, and if the terms are not what it wants, then it will ask that there shall be heads in the basket. And what is more, it will see that there are. We utter this warning in all serious good faith, believing as we do that the people will have no more of diplomatic secrecy and the old-fashioned methods of statecraft which have been one of the principal contributories to plunging the world into bloodshed.

The Labour Question

Another acute problem which will arise—which in sober fact has already arisen—is that of the relations between Labour and Capital. We are unfeignedly glad to see that the responsible leaders of Labour, so far as they are competent to speak for the mass, are completely sound on the manner in which the manifold problems bound up with the future must be approached. Moreover, in this direction at least the Government has made known its plans for the demobilisation of the munitions industries, and it seems to us that they are good. They at least ensure that every man and every woman who has been serving the country in essential war industries will be placed beyond anxiety during the period of transition. Agreed that the weekly sums to be paid out to tide the workers over that period do not represent affluence, they do assure them of enough to keep the wolf from the door. Nothing is so provocative of discontent as hunger or the uncertainty of whether there will be a meal for to-morrow or not, and in placing that beyond a doubt the Government has done very wisely and has put a spoke in the Bolshevik wheel. We are not speaking without the book when we say that there are certain elements at work in the country which are fully prepared to take advantage of every transitory phase of the post-War situation to foment the spirit of Bolshevism. Fortunately, we are not a people which takes kindly to revolution or the capricious upsetting of our institutions, but there is no gainsaying the fact that there is a feeling abroad in certain quarters which might become dangerous were the opportunity given. One of those opportunities would have lain in the unfair or haphazard demobilisation of our war industries, but by taking the matter in time, and announcing what seems to us to be a very fair compromise with the workers, the Government has effectually spiked the guns of the malcontents. Not that we may not look forward to a serious disturbance of the labour equilibrium in the near future. Unfortunately, that is inevitable owing to the changes that are bound to ensue on the coming of peace. The times will call for all the level-headedness we possess as a nation—fortunately, one of the foremost of British characteristics is a level-headed common sense which has kept us out of innumerable troubles into which other nations have fallen, and it is that which must come to the rescue now.

We look to much good to come out of the movement for a closer alliance between the employer and the employed. The Federation of British Industries, at its annual general meeting the other day, emphasised the need for a change in this direction. Mr. Dudley Docker, in moving a resolution emphasising the supreme importance of British industry,

reminded industry that it owed a duty to the community, and in pursuance of that duty the Federation would endeavour by co-operative and other means to raise production to the highest level both of quantity and quality, to reduce expenses of distribution and the cost of goods to the consumer, and to ensure the maintenance of industrial peace and the enjoyment by all engaged in industry of the fullest share practicable in the creation and distribution of wealth. All these are excellent sentiments, and we would they were backed by corresponding expressions of responsible opinion from the workers' side. Still, we are by no means discouraged by the outlook. As we have said, if we are to bridge over the gap which lies between us and the complete reconstruction of our industrial and commercial status, it will require all the good-will, all the level-headed resource we possess among every class of the industrial and commercial communities. Given that, we shall be all right.

If these essentials do not come to the surface, then we shall never retrieve our former position. But the profound belief we have in our fellow-countrymen induces us to think that whatever the causes of difference now, whatever points of friction there may arise in the future, these will all be smoothed away and the future will be full of promise.

Aeroplanes After the War

In our correspondence columns we print a letter from a prominent firm of aeronautical engineers, which appears to us to merit the very closest attention of the trade. The main point raised by the letter is that owing to the conditions under which production has proceeded during the war there is an utter want of standardisation of ideas and designs. On general principles we ourselves have always opposed standardisation as tending towards stagnation, but in this case we are entirely at one with our correspondents.

Much as we have learnt as a consequence of the lessons inculcated by the War, and enormous as the improvement has been in every detail of aircraft, it must not be forgotten that all our energies have been concentrated on the production of machines for war purposes simply and solely, without the slightest reference to commercial use in the post-bellum period. Naturally, all this experience will prove invaluable in the development of aviation for peaceful purposes, but it requires to be related and co-ordinated before

it can be of much general use. For instance, the machine of the fast scouting type will be quite useless for commercial purposes, as was the Brooklands speed monster of before the war. Nevertheless, the latter provided most valuable data for the manufacturer of the pleasure car. So undoubtedly the experience of the fast fighting machine will prove of inestimable value to the constructors of heavy commercial types later on, but the results of that experience must be collected and tabulated over all the various types, and out of the sum total some methods of standardisation of product must be evolved.

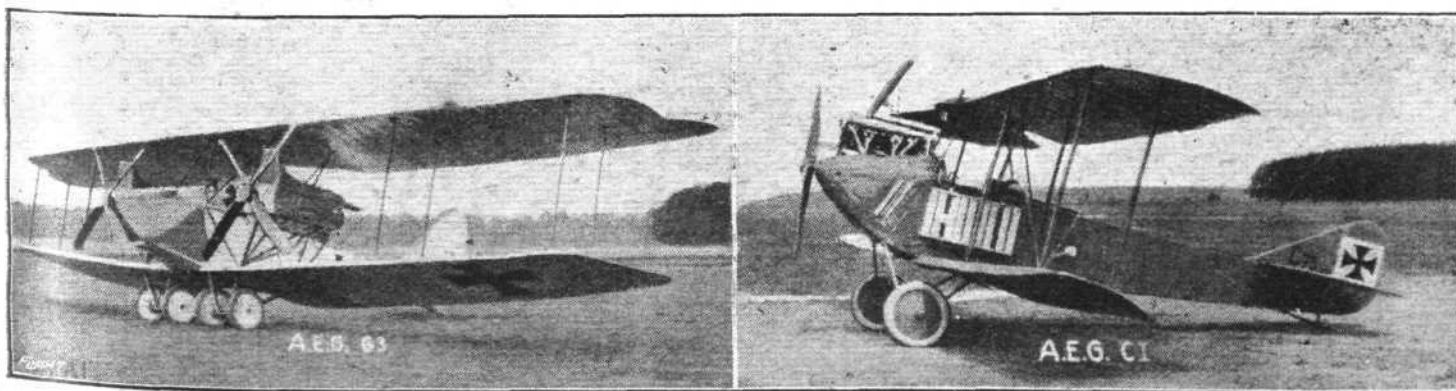
We are not at all astonished at our correspondents' experience of the diversity of views expressed by the numerous firms with whom they communicated. It would have been passing strange if it had been otherwise, in view of the conditions under which they have been working. We need hardly say that we shall be more than pleased to open our columns to such a correspondence as is suggested, since we believe it will prove of the greatest possible value to the industry and to the future development of aviation.

The End of the War!

It was with feelings of the most devout thankfulness that England received the news on Monday that the end of the War had indeed come at last, and come in the definite shape which the country had always intended it should come—with the complete surrender of Germany to the armistice terms imposed by the Allied Powers. There is not very much to be said at the moment. We are all too oppressed with the magnitude of the relief after more than four years of bitter struggle to be articulate. The only feeling of which every responsible person is conscious is one of complete gratitude that the end, which so often seemed far off and doubtful of the issues, has indeed come at last.

Later, when we have all become used to the feeling of peace again, there will come the counting of the cost. We shall think with sorrow of the million of our best who lie beneath the mud of Flanders, in the arid wastes of Gallipoli and in the tropic sands of many a far-flung battle-ground, and of the many thousands who have given health and limb to secure what we have gained—the permanent peace of the world.

But the effect of the sudden end is too stunning for us to think coherently of anything but the one great glorious fact—the WAR HAS ENDED.



AN A.E.G. TWIN-ENGINE BOMBER OF THE G III TYPE.—On the right a C I type.

THE ARMISTICE

AVIATION has had such an all-governing effect upon the final attainment of Peace that as a matter of record we reproduce the terms of the November 11th Armistice, which for all practical purposes signifies the end of the most ghastly and iniquitous war the world has known.

A.—CLAUSES RELATING TO WESTERN FRONT

I.—Cessation of operations by land and in the air six hours after the signature of the Armistice.

II.—Immediate evacuation of invaded countries—Belgium, France, Alsace-Lorraine, Luxemburg—so ordered as to be completed within 14 days from the signature of the Armistice. German troops which have not left the above-mentioned territories within the period fixed will become prisoners of war. Occupation by the Allied and United States Forces jointly will keep pace with evacuation in these areas. All movements of evacuation and occupation will be regulated in accordance with a Note (Annexure 1).

III.—Repatriation, beginning at once, to be complete within 14 days, of all inhabitants of the countries above enumerated (including hostages, persons under trial, or convicted).

IV.—Surrender in good condition by the German Armies of the following equipment:—5,000 guns (2,500 heavy, 2,500 field); 30,000 machine-guns; 3,000 *Minenwerfer* 2,000 aeroplanes (fighters, bombers—firstly D.7's—and night-bombing machines). The above to be delivered *in situ* to the Allied and United States troops in accordance with the detailed conditions laid down in the Note. (Annexure 1).

V.—Evacuation by the German Armies of the countries on the left bank of the Rhine. These countries on the left bank of the Rhine shall be administered by the local authorities under the control of the Allied and United States Armies of occupation. The occupation of these territories will be carried out by Allied and United States garrisons holding the principal crossings of the Rhine (Mayence, Coblenz, Cologne), together with bridgeheads at these points of a 30 kilometre [about 19 miles] radius on the right bank, and by garrisons similarly holding the strategic points of the regions. A neutral zone shall be set up on the right bank of the Rhine between the river and a line drawn 10 kilometres [6½ miles] distant, starting from the Dutch frontier to the Swiss frontier. In the case of inhabitants, no person shall be prosecuted for having taken part in any military measures previous to the signing of the Armistice. No measure of a general or official character shall be taken which would have, as a consequence, the depreciation of industrial establishments or a reduction of their *personnel*. Evacuation by the enemy of the Rhineland shall be so ordered as to be completed within a further period of 16 days, in all 31 days after the signature of the Armistice. All movements of evacuation and occupation will be regulated according to the Note (Annexure 1).

VI.—In all territory evacuated by the enemy there shall be no evacuation of inhabitants; no damage or harm shall be done to the persons or property of the inhabitants. No destruction of any kind to be committed. Military establishments of all kinds shall be delivered intact, as well as military stores of food, munitions, equipment not removed during the periods fixed for evacuation. Stores of food of all kinds for the civil population, cattle, &c., shall be left *in situ*. Industrial establishments shall not be impaired in any way, and their *personnel* shall not be moved.

VII.—Roads and means of communication of every kind, railroads, waterways, main roads, bridges, telegraphs, telephones, shall be in no manner impaired. All civil and military *personnel* at present employed on them shall remain. 5,000 locomotives, 150,000 wagons, and 5,000 motor lorries in good working order, with all necessary spare parts and fittings, shall be delivered to the Associated Powers within the period fixed for the evacuation of Belgium and Luxemburg. The railways of Alsace-Lorraine shall be handed over within the same period, together with all pre-war *personnel* and material. Further, material necessary for the working of railways in the country on the left bank of the Rhine shall be left *in situ*. All stores of coal and material for upkeep of permanent way, signals, and repair shops shall be left *in situ* and kept in an efficient state by Germany, as far as the means of communication are concerned, during the whole period of the Armistice. All barges taken from the Allies shall be restored to them. The Note appended as Annexure 2 regulates the detail of these measures.

VIII.—The German Command shall be responsible for revealing all mines or delay-action fuses disposed on territory evacuated by the German troops and shall assist in their

discovery and destruction. The German Command shall also reveal all destructive measures that may have been taken (such as poisoning or pollution of springs, wells, &c.), under penalty of reprisals.

IX.—The right of requisition shall be exercised by the Allied and United States Armies in all occupied territory, save for settlement of accounts with authorised persons. The upkeep of the troops of occupation in the Rhineland (excluding Alsace-Lorraine) shall be charged to the German Government.

X.—The immediate repatriation, without reciprocity, according to detailed conditions which shall be fixed, of all Allied and United States prisoners of war; the Allied Powers and the United States of America shall be able to dispose of these prisoners as they wish. However, the return of German prisoners of war interned in Holland and Switzerland shall continue as heretofore. The return of German prisoners of war shall be settled at peace preliminaries.

XI.—Sick and wounded who cannot be removed from evacuated territory will be cared for by German *personnel*, who will be left on the spot, with the medical material required.

B.—CLAUSES RELATING TO THE EASTERN FRONTIERS OF GERMANY

XII.—All German troops at present in any territory which before the war belonged to Russia, Rumania, or Turkey shall withdraw within the frontiers of Germany as they existed on August 1st, 1914, and all German troops at present in territories which before the war formed part of Russia must likewise return to within the frontiers of Germany as above defined as soon as the Allies shall think the moment suitable, having regard to the internal situation of these territories.

XIII.—Evacuation by German troops to begin at once; and all German instructors, prisoners, and civilian as well as military agents now on the territory of Russia (as defined on August 4th, 1914) to be recalled.

XIV.—German troops to cease at once all requisitions and seizures, and any other undertaking with a view to obtaining supplies intended for Germany in Rumania and Russia, as defined on August 1st, 1914.

XV.—Abandonment of the Treaties of Bukarest and Brest-Litovsk and of the Supplementary Treaties.

XVI.—The Allies shall have free access to the territories evacuated by the Germans on their Eastern frontier, either through Danzig or by the Vistula, in order to convey supplies to the populations of these territories or for the purpose of maintaining order.

C.—CLAUSE RELATING TO EAST AFRICA

XVII.—Unconditional evacuation of all German forces operating in East Africa within one month.

D.—GENERAL CLAUSES

XVIII.—Repatriation, without reciprocity, within a maximum period of one month, in accordance with detailed conditions hereafter to be fixed, of all civilians interned or deported who may be citizens of other Allied or Associated States than those mentioned in Clause III.

XIX.—With the reservation that any future claims and demands of the Allies and United States of America remain unaffected, the following financial conditions are required:—Reparation for damage done. While the Armistice lasts no public securities shall be removed by the enemy which can serve as a pledge to the Allies for the recovery or reparation for war losses. Immediate restitution of the cash deposit in the National Bank of Belgium and, in general, immediate return of all documents, specie, stock, shares, paper money, together with money plant for the issue thereof, touching public or private interests in the invaded countries. Restitution of the Russian and Rumanian gold yielded to Germany or taken by that Power. This gold to be delivered in trust to the Allies until the signature of peace.

E.—NAVAL CONDITIONS

XX.—Immediate cessation of all hostilities at sea, and definite information to be given as to the location and movements of all German ships. Notification to be given to neutrals that freedom of navigation in all territorial waters is given to the Naval and Mercantile Marines of the Allied and Associated Powers, all questions of neutrality being waived.

XXI.—All Naval and Mercantile Marine prisoners of war of the Allied and Associated Powers in German hands to be returned, without reciprocity.

XXII.—Handing over to the Allies and the United States of all submarines (including all submarine cruisers and minelayers) which are present at the moment with full com-

plement in the ports specified by the Allies and the United States. Those that cannot put to sea to be deprived of crews and supplies, and shall remain under the supervision of the Allies and the United States. Submarines ready to put to sea shall be prepared to leave German ports immediately on receipt of wireless order to sail to the port of surrender, the remainder to follow as early as possible. The conditions of this Article shall be carried [out] within 14 days after the signing of the Armistice.

XXIII.—The following German surface warships, which shall be designated by the Allies and the United States of America, shall forthwith be disarmed and thereafter interned in neutral ports, or, failing them, Allied ports, to be designated by the Allies and the United States of America, and placed under the surveillance of the Allies and the United States of America, only caretakers being left on board, namely :— 6 battle cruisers, 10 battleships, 8 light cruisers, including two minelayers, 50 destroyers of the most modern types. All other surface warships (including river craft) are to be concentrated in German Naval bases to be designated by the Allies and the United States of America, and are to be paid off and completely disarmed and placed under the supervision of the Allies and the United States of America. All vessels of the auxiliary fleet (trawlers, motor-vessels, &c.) are to be disarmed. All vessels specified for internment shall be ready to leave German ports seven days after the signing of the Armistice. Directions of the voyage will be given by wireless.

NOTE.—A declaration has been signed by the Allied Delegates and handed to the German Delegates to the effect, that, in the event of ships not being handed over owing to the mutinous state of the Fleet, the Allies reserve the right to occupy Heligoland as an advanced base to enable them to enforce the terms of the Armistice. The German Delegates have on their part signed a Declaration that they will recommend the Chancellor to accept this.

XXIV.—The Allies and the United States of America shall have the right to sweep up all minefields and obstructions laid by Germany outside German territorial waters, and the positions of these are to be indicated.

XXV.—Freedom of access to and from the Baltic are to be given to the Naval and Mercantile Marines of the Allied and Associated Powers. To secure this, the Allies and the United States of America shall be empowered to occupy all German forts, fortifications, batteries, and defence works of all kinds in all the entrances from the Kattegat into the Baltic, and to sweep up all mines and obstructions within and without German territorial waters without any questions of neutrality being raised, and the positions of all such mines and obstructions are to be indicated.

XXVI.—The existing blockade conditions set up by the Allied and Associated Powers are to remain unchanged, and all German merchant ships found at sea are to remain liable to capture. The Allies and United States contemplate the provisioning of Germany during the Armistice as shall be found necessary.

XXVII.—All Naval aircraft are to be concentrated and immobilised in German bases to be specified by the Allies and the United States of America.

XXVIII.—In evacuating the Belgian coasts and forts Germany shall abandon all merchant ships, tugs, lighters, cranes, and all other harbour material, all materials for inland navigation, all aircraft and air materials and stores, all arms and armaments, and all stores and apparatus of all kinds.

XXIX.—All Black Sea ports are to be evacuated by Germany; all Russian warships of all descriptions seized by Germany in the Black Sea are to be handed over to the Allies and the United States of America; all neutral merchant ships seized are to be released; all warlike and other materials of all kinds seized in those ports are to be returned, and German materials as specified in Clause XXVIII. are to be abandoned.

XXX.—All merchant ships in German hands belonging to the Allied and Associated Powers are to be restored in ports to be specified by the Allies and the United States of America without reciprocity.

XXXI.—No destruction of ships or of materials to be permitted before evacuation, surrender, or restoration.

XXXII.—The German Government shall formally notify the neutral Governments of the world, and particularly the Governments of Norway, Sweden, Denmark, and Holland, that all restrictions placed on the trading of their vessels with the Allied and Associated countries, whether by the German Government or by private German interests, and whether in return for specific concessions, such as the export of shipbuilding materials or not, are immediately cancelled.

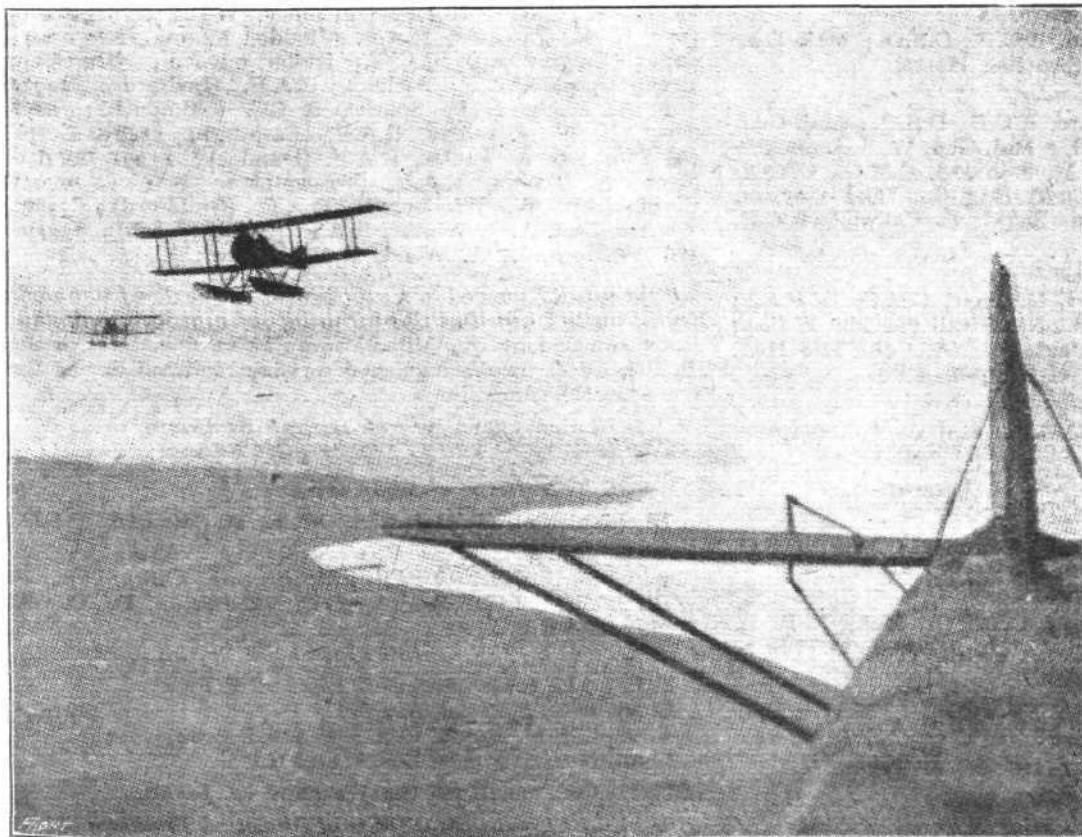
XXXIII.—No transfers of German merchant shipping of any description to any neutral flag are to take place after signature of the Armistice.

F.—DURATION OF ARMISTICE.

XXXIV.—The duration of the Armistice is to be for 36 days, with option to extend. During this period, on failure of execution of any of the above clauses, the Armistice may be denounced by one of the contracting parties on 48 hours' previous notice.

G.—TIME LIMIT FOR REPLY

XXXV.—This Armistice to be accepted or refused by Germany within 72 hours of notification.



German Sea-
planes Going
Inland. — Photo-
graph taken from
another machine.

HONOURS

It was announced in a supplement to the *London Gazette* on November 8th that the King has been pleased to approve of the award of the Victoria Cross to Lieut. (A. Capt.) Ferdinand Maurice Felix West, M.C., R.A.F. (formerly of the Special Reserve, Royal Munster Fusiliers), in recognition of his outstanding bravery in aerial combat. Capt. West, while engaging hostile troops at a low altitude, far over the enemy lines, was attacked by seven aircraft. Early in the engagement one of his legs was partially severed by an explosive bullet, and fell powerless into the controls, rendering the machine for the time unmanageable. Lifting his disabled leg, he regained control of the machine, and, although wounded in the other leg, he, with surpassing bravery and devotion to duty, manœuvred his machine so skilfully that his observer was enabled to get several good bursts into the enemy machines, which drove them away. Capt. West then, with rare courage and determination, desperately wounded as he was, brought his machine over our lines and landed safely. Exhausted by his exertions, he fainted, but on regaining consciousness insisted on writing his report. (The award of the Military Cross was gazetted on July 26th, 1918.)

Foreign Decorations

The King has granted unrestricted permission for the wearing of the following decorations, conferred on the Officers indicated, for valuable services in connection with the War:—

CONFERRED BY THE GOVERNMENT OF THE FRENCH REPUBLIC.

For Services in Flanders.

Croix de Guerre avec Palme.

Maj. (A. Lieut.-Col.) H. A. R. Aubrey, M.C. (Sea Patrol) (Shrops. L.I.); Capt. R. M. Bayley (Sea Patrol) (S.A. Horse); Maj. B. C. Bell, D.S.O., D.S.C. (Sea Patrol); Lieut. (A. Capt.) R. M. Berthe (Sea Patrol); Lieut. W. Black, M.C. (Sea Patrol); (Cam'n Highrs.); Maj. H. G. Brackley, D.S.O., D.S.C. (Sea Patrol); Lieut. (A. Capt.) C. P. Brown, D.F.C. (Sea Patrol); Lieut. A. Buchanan, D.F.C. (Sea Patrol); Col. (A. Brig.-Gen.) C. L. Lambe, C.M.G., D.S.O. (Sea Patrol); Lieut. G. S. Lewtas (Sea Patrol); Sec. Lieut. (A. Lieut.) H. D. McLaren, D.F.C. (Sea Patrol); Lieut. (A. Capt.) T. W. Nash, D.F.C. (Sea Patrol); Maj. (A./Lt.-Col.) E. Osmond (Sea Patrol).

For Services in Italy.

Maj. J. T. Whittaker, M.C. (A.S.C.).

CONFERRED BY THE GOVERNMENT OF ITALY.

Order of the Crown of Italy.

Grand Officer.

Lieut.-Gen. Sir D. Henderson, K.C.B., D.S.O.; Maj. J. L. Baird, C.M.G., D.S.O., M.P. (Scottish Horse).

Commander.

Maj.-Gen. Sir H. M. Trenchard, K.C.B., D.S.O.; Maj.-Gen. Sir G. M. Paine, K.C.B., M.V.O.; Maj.-Gen. W. S. Brancker, A.F.C. (R.A.); Maj.-Gen. J. M. Salmond, C.M.G., C.V.O., D.S.O. (R. Lanc. R.); Lieut.-Col. (A. Brig.-Gen.) G. Livingston C.M.G. (Lond. R.); Maj.-Gen. Sir C. E. Callwell, K.C.B. (formerly attached Air Board).

Officer.

Lieut.-Col. (A. Brig.-Gen.) J. G. Weir, C.M.G. (R.F.A.); Lieut.-Col. (A. Brig.-Gen.) C. L. N. Newall (Gurkha Rifles); Lieut.-Col. I. B. Dawson; Lieut.-Col. (A. Col.) The Hon. W. F. Forbes-Sempill, Master of Sempill, A.F.C.

Cavaliere.

Lieut.-Col. A. E. J. Reiss, O.B.E.; Maj. A. V. Thompson, Capt. (A. Maj.) F. T. Bridger, Capt. F. G. Hogarth.

Order of St. Maurice and St. Lazarus.

Officer.

Lieut.-Col. (A. Brig.-Gen.) W. Alexander, C.M.G., D.S.O. (Roy. Highrs.).

Cavaliere.

Maj. the Hon. E. A. Stonor; Capt. (A. Maj.) J. E. L. Wrench, C.M.G.; Maj. (T. Lieut.-Col. in Army) T. B. Phillips (formerly connected with Air Board).

Bronze Medal for Military Valour.

Capt. W. W. Benn, D.S.O., D.F.C. (Lond. Yeo.).

CONFERRED BY THE GOVERNMENT OF JAPAN.

Order of the Rising Sun.

2nd Class.

Maj.-Gen. Sir G. M. Paine, K.C.B., M.V.O.

3rd Class.

Col. (A. Maj.-Gen.) A. V. Vyvyan, C.B., D.S.O.; Col. (A. Brig.-Gen.) H. D. Briggs.

Order of the Sacred Treasure.

3rd Class.

Lieut.-Col. H. Delacombe.

Order of the Rising Sun.

4th Class.

Capt. (A. Maj.) W. P. Groves.

CONFERRED BY THE GOVERNMENT OF BELGIUM.

For Services in France and Flanders.

Order of Leopold, Commander, together with the Belgian Croix de Guerre

Maj.-Gen. J. M. Salmond, C.M.G., C.V.O., D.S.O. (R. Lanc. R.).

The King has approved of the following rewards in recognition of bravery in the field:—

The Military Cross.

Sec. Lieut. (A. Lieut.) F. B. PALMER, R.A.F.—On the night of August 24th, 1918, this officer performed very gallant and meritorious service. In an attack on one of our aerodromes by hostile aircraft a hangar full of machines was set on fire, illuminating the whole camp, making the aerodrome an easy mark for the raiders, who continued dropping bombs for 15 minutes. Great confusion ensued, and 20 officers and men were wounded. Lieut. Palmer was blown over by the explosion of a bomb, and, although badly shaken, he exhibited coolness and courage of a high order, and by his promptitude succeeded in collecting the wounded, placing them in comparative safety, and also managed to remove the machines and transport from the burning hangars and shelters, notwithstanding the continual dropping of the enemy's bombs in the area.

The Military Medal

63289 2nd Air-Mech. W. L. Baker, R.A.F. (Finedon); 9521 1st Air-Mech. G. Emmitt, R.A.F. (Spalding, Lincs.); 99481 3rd Air-Mech. H. Flather, R.A.F. (Mexborough); 29263 Sergt.-Mech. W. E. Layzell, R.A.F. (Romford); 18387 Corpl.-Mech. F. Ludlow, R.A.F. (Haggerston, N.); 8680 Corpl.-Mech. E. Mabbutt, R.A.F. (Kingston-on-Thames); 114784 Sergt. J. Nichol, R.A.F. (Durham); 27416 Sergt.-Mech. T. Owens, R.A.F. (Salisbury, Wilts); 19740 Pte. (1st) K. M. Paterson, R.A.F. (Clodden Moore, Inverness); 20243 Sergt.-Mech. G. T. Ridler, R.A.F. (Dursley); 12375 Corpl. A. E. Sackett, R.A.F. (Bedford); 24970 3rd Air-Mech. I. F. Sparks, R.A.F. (Sidmouth); 9891 Sergt. F. W. J. Sibley, R.A.F. (Barking); 134856 Corpl. (A. Sergt.) S. A. Taylor, R.A.F. (Dundee); 17991 1st Air-Mech. A. Teakle, R.A.F. (Westminster, S.W.); 104631 Corpl.-Mech. W. Windebank, R.A.F. (Guildford); 33801 1st Air-Mech. A. J. Winter, R.A.F. (Peterborough); 134709 3rd Air-Mech. D. A. Wood, R.A.F. (Ipswich).

It was announced in a supplement to the *London Gazette* on November 9th that the following are among the decorations awarded by the Allied Powers at various dates to the British forces for distinguished services rendered during the course of the campaign:—

CONFERRED BY THE SULTAN OF EGYPT.

Order of the Nile.

2nd Class.

Bt. Lieut.-Col. (T. Maj. Gen.) W. G. H. Salmond, D.S.O., R.A.

3rd Class.

Bt. Lieut.-Col. (T. Brig.-Gen.) A. E. Borton, D.S.O., R. Highrs. and R.F.C.

4th Class.

T. Capt. H. I. Hanmer, Gen. List and R.F.C.

Lieut. E. A. Mustard, Aus. F.C.

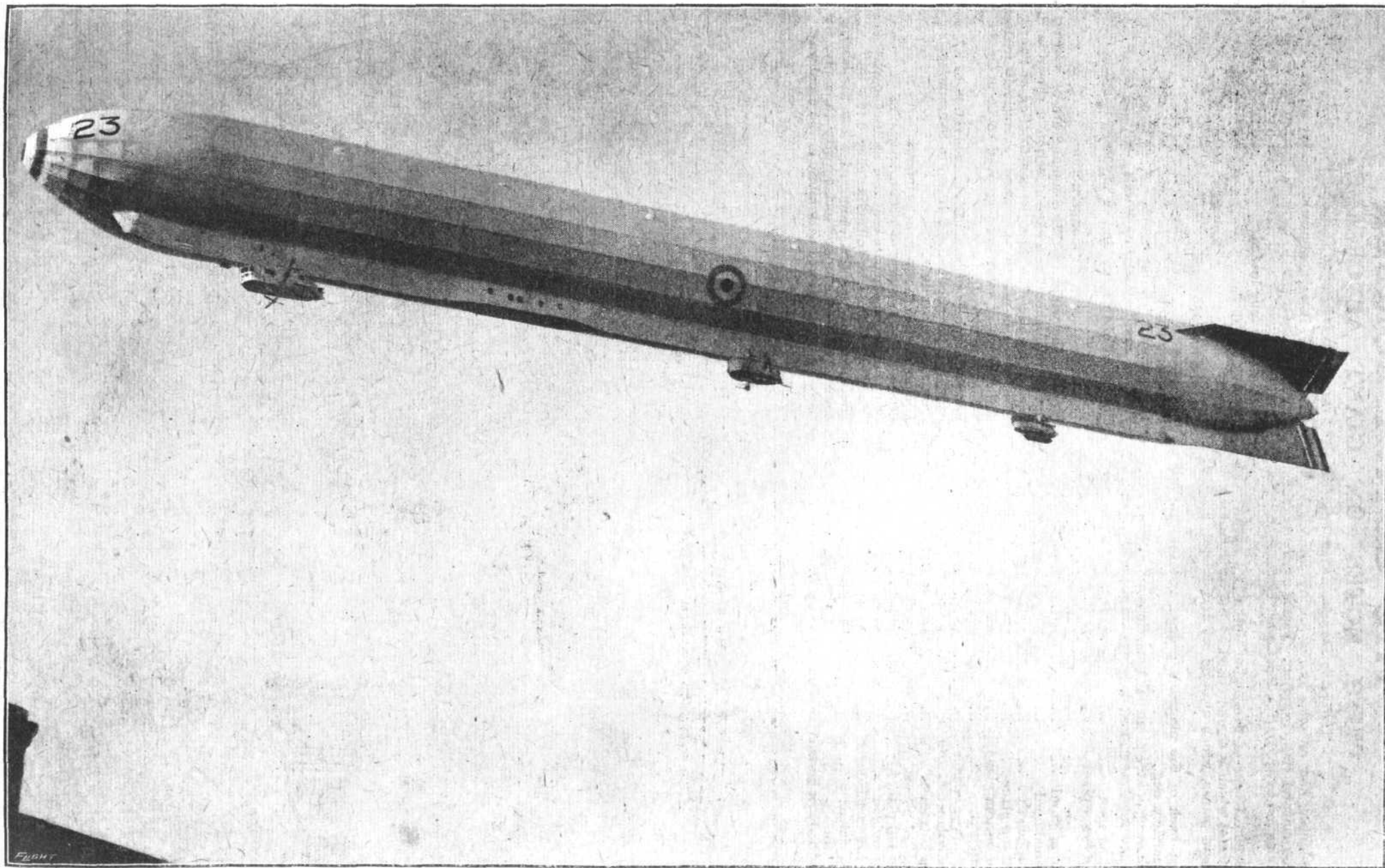
T. Capt. J. H. Storey, Gen. List and R.F.C.

Lieut. H. H. Thomas, R.F.A. and R.F.C.

CONFERRED BY THE EMPEROR OF JAPAN.

Grand Cordon of the Order of the Sacred Treasure.

Lieut.-Gen. Sir D. Henderson, K.C.B., D.S.O.



A British "Zepp." which watched over the Lord Mayor's Victory Show.

"Flight" Copyright.

THE GOTHA BOMBER

WITH NOTES ON GIANT AEROPLANES

[Issued by Technical Department (Aircraft Production), Ministry of Munitions.]

This machine is now on view at the Enemy Aircraft View Room, Agricultural Hall, Islington. Passes can be obtained upon application to Ap. D. (L.), Pen Corner House, Kingsway, W.C.2.

The standard type of two-engine Gotha is a pusher, the appearance of which is characterised by the backward sweep of the main planes, which are also set at a lateral dihedral angle.

The set back of the planes is 4 deg., and the dihedral approximately 2 deg.

The following are the principal dimensions of the aeroplane, of which general arrangement drawings are given herewith :—

Maximum span ...	...	...	77 ft.
Span of lower plane ...	...	...	71 ft. 9 in.
Gap ...	...	...	7 ft.
Maximum chord ...	...	...	7 ft. 6 in.
Minimum chord ...	...	...	7 ft. 2½ in.
Over-all length ...	...	...	41 ft.
Area of top plane ...	...	...	521.6 sq. ft.
Area of bottom plane ...	...	...	464 sq. ft.
Total area ...	...	...	985 sq. ft.
Area of upper <i>aileron</i> ...	...	...	32 sq. ft.
Area of balance of <i>aileron</i> ...	...	...	3.2 sq. ft.
Area of bottom <i>aileron</i> ...	...	...	22.4 sq. ft.
Span of tail planes ...	...	...	13 ft. 6 in.
Area of tail planes ...	...	...	45 sq. ft.
Area of rudder ...	...	...	16 sq. ft.
Area of rudder balance ...	...	...	3.2 sq. ft.
Area of elevators ...	...	...	19.2 sq. ft.
Area of fin ...	...	...	11.2 sq. ft.
Area of body in horizontal plane			96 sq. ft.

Area of body in-vertical plane	...	107 sq. ft.
Weight empty	... ..	2,740 kg. = 6,039 lbs
Useful load	... ..	1,235 kg. = 2,722 lbs.
Total weight fully loaded	...	3,975 kg. = 8,763 lbs.
Loading per sq. ft.	...	8.9 lbs.

Engines.

Two 260 h.p. Mercedes.

Engine centres	...	...	...	14 ft.
Propeller diameter	...	...	...	10 ft. 2 in.
Track of main landing wheels	...	...	...	3 ft. 2½ in.
Track of auxiliary landing wheels	...	...	...	2 ft. 7½ in.

The speed of this machine at 12,000 ft. is estimated at 72 miles per hour.

Construction.

Wings.—The wings of this aeroplane are of wooden construction throughout, and have a section as shown in Fig. 1. This drawing also illustrates the construction of the rib (the web of which is of three-ply wood, extensively perforated, and the flange of solid wood grooved to fit upon the web, to which it is tacked).

For the purposes of comparison, the section of the R.A.F. 14 wing is super-imposed and drawn to the same scale. This is shown in broken lines.

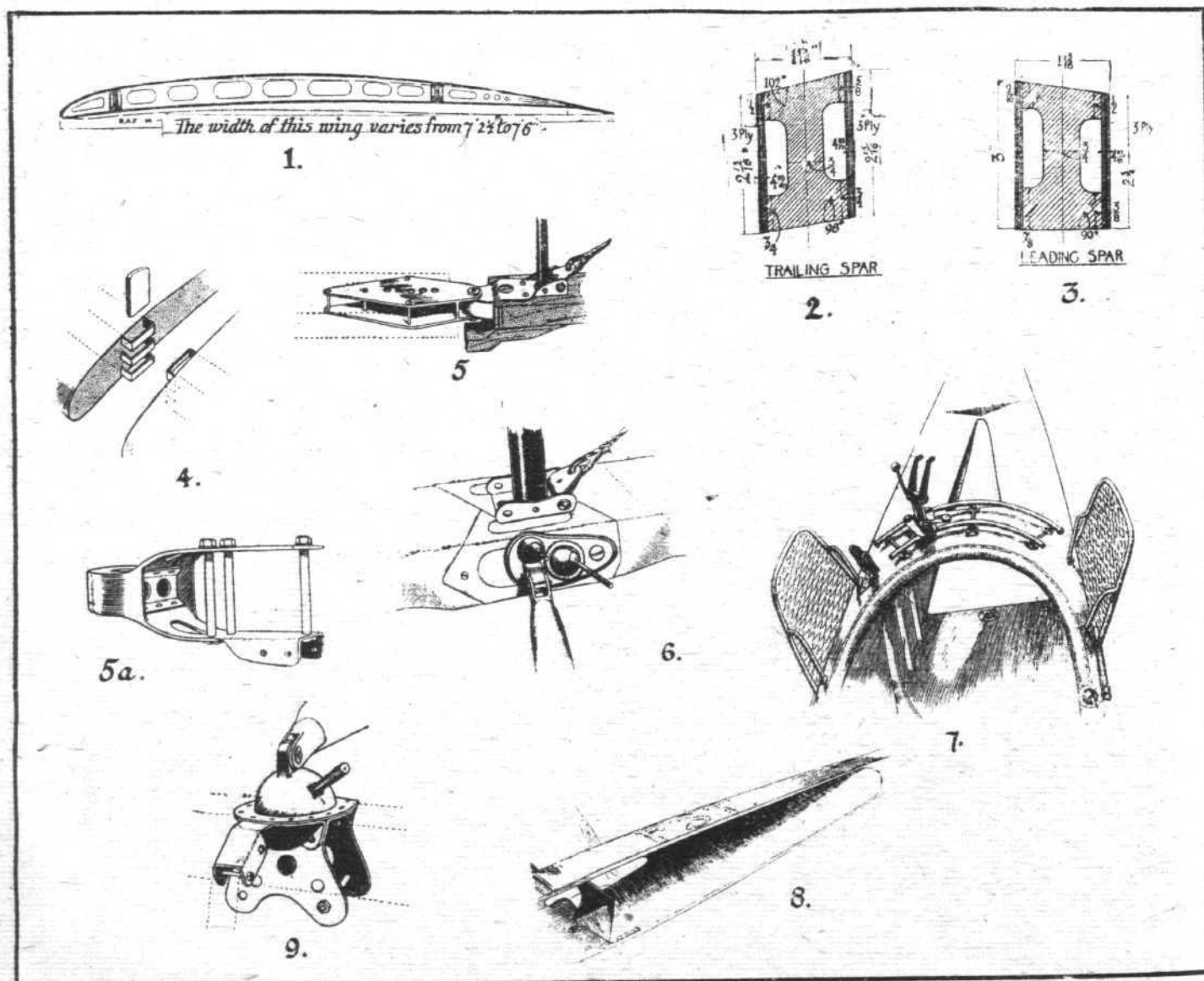
The disposal of the spars is as follows :—

Leading edge to centre of leading spar, 9 in.

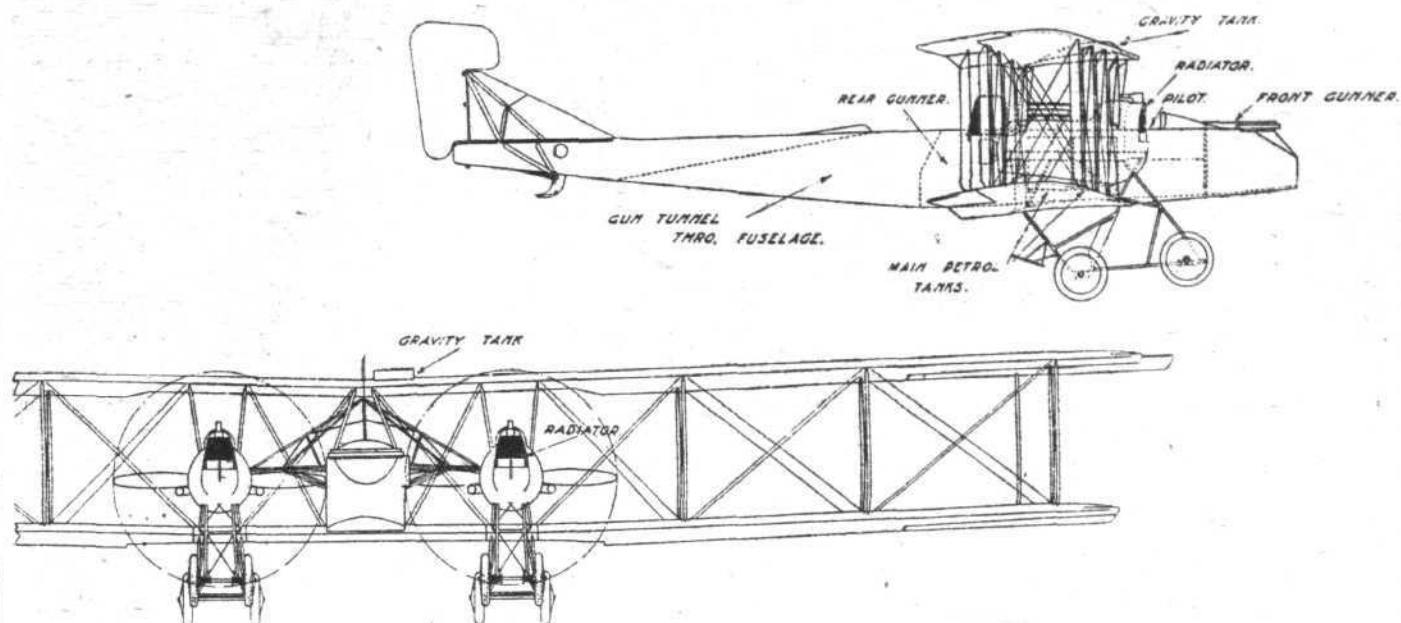
Centre of leading spar to centre of trailing spar, 4 ft. 4 in.

Centre of trailing spar to trailing edge, 2 ft. 5 in.

The space between the leading edge and the leading spar is covered as to the upper surface with three-ply, the rest of the wing being covered with fabric in the usual way.

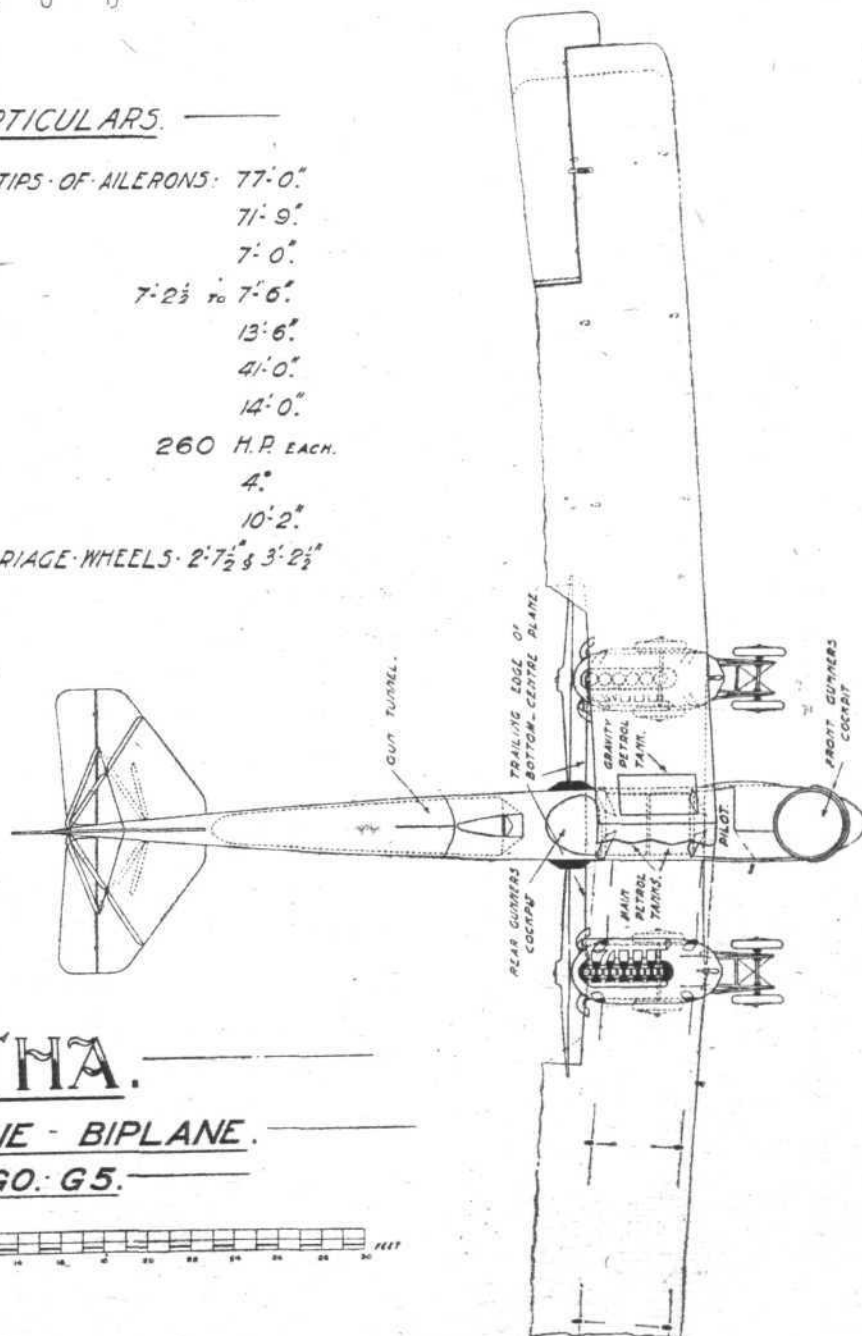


SOME CONSTRUCTIONAL DETAILS OF THE GOTHA BOMBER,—Figs. 1 to 9.



GENERAL - PARTICULARS.

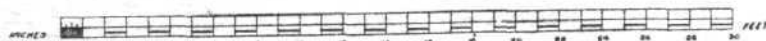
SPAN (TOP PLANE) OVER TIPS OF AILERONS	77' 0"
" (B.T.M.)	71' 9"
GAP	7' 0"
CHORD	7' 2½" to 7' 6"
TAIL PLANE SPAN	13' 6"
OVERALL LENGTH	41' 0"
ENGINE CENTRES	14' 0"
ENGINES (MERCEDES)	260 H.P. EACH.
SET BACK OF PLANES	4"
PROPELLER (DIA.)	10' 2"
CENTRES OF UNDERCARRIAGE WHEELS	2' 7½" & 3' 2½"



GOTHA.

TWIN - ENGINE - BIPLANE.

TYPE - GO. G5.



THE GOTHA BOMBER.—General arrangement drawings.

The spars possess several points of interest, and their dimensions and method of construction are presented in Figs. 2 and 3, from which it will be seen that they differ from the practice adopted in other German designs.

The I Section main members are of spruce. The three-ply walls, applied to them by glueing and tacking, are principally birch, and are 4 mm. thick.

The spars are wrapped with fabric throughout.

In the earlier Gotha designs the sweep back of the wings was 10 deg. In the present design it is 4 deg., due probably to the fact that other means have been successfully adopted to get the centre of gravity sufficiently forward.

It will be seen from the scale drawings that whereas the upper wing surface consists of two portions which unite at the centre line of the machine, the lower plane on each side consists of the centre section attached to the base of the fuselage, and an outward extension, between which is interposed a short span of plane forming, with the engine bearers and their struts, and the landing carriages on each side, a completely independent and separate unit. These small sections of planes are covered in with three-ply, both top and bottom, and the same material is used for the upper surface of the centre section of the lower plane.

At the junction of the two upper wings, a rather unusual joint is employed; this is illustrated in Fig. 4, and consists of a series of rectangular staples which are held together by a steel wedge. The joints used in the lower plane are of a different character, and embody the usual pin principle, giving the spars, when not braced by the wiring, a hingeing action in the vertical plane. This joint is shown in Fig. 5, which also illustrates the manner in which the wings are braced against drag stresses by means of very light steel compression tubes and cables.

Another view of the box joint on the spar end is given in Fig. 5a, which shows its internal construction. Joints of the above design are used on either side of the engine bearer section.

Struts.

Apart from the struts which separate the engine eggs and brace them to the fuselage, there are three pairs of interplane struts on each wing. These struts are composed of steel tubing to which is attached a three-ply fairing. The design of the strut joint is shown in Fig. 6.

The wire bracing throughout is by multi-strand steel cable, the fitting of which, however, presents no features of interest.

Ailerons.

Only the upper ailerons are balanced, the upper and lower ailerons being connected by a single strut on each side. The operating lever is fitted on the top aileron, and works in a slot cut in the upper main plane. From this lever wires are taken over pulleys on the leading spar of the lower plane, and thence to the fuselage through the space between the leading edge and the forward spar.

Where the wires pass through the small sections of lower plane under the engines, they are provided with detachable connections which can be inspected through hinged flaps.

The framework of the ailerons is of steel tube throughout, involving a welded-up one-piece construction.

Propeller Accommodation.

In order to permit the engine eggs to be placed sufficiently far forward to allow of the centre of gravity being correct, considerable inroads have had to be made in the trailing edge of both upper and lower planes in order to give scope for the propellers. In front of the screws, the chord of the planes is reduced to 5 ft. 9 in., and at this point the trailing edge is very blunt.

Empennage.

The whole of the empennage construction is of steel tubing, and the various components are rigidly braced together by inclined streamline struts, which, as in the case of the main

struts, are of circular section steel tubing, to which a three-ply fairing has been added.

These external struts give the Gotha tail a somewhat clumsy appearance, and would seem furthermore to exercise a notable masking effect upon the rear gun. Only the rudder is balanced, and it will be noticed that the area of this organ, compared with that of the fin, is very large.

Fuselage.

The fuselage is in one piece from nose to rudder post, and is an entirely wooden construction, consisting of the usual longerons and wooden transverse members. It is covered in with three-ply throughout its length on the top, bottom and sides, but whereas in most German aeroplanes the three-ply lining is relied upon for solidifying the structure, in this machine it is extensively reinforced by diagonal wire bracings, especially in the forward portion of the fuselage at the point at which the main planes are attached.

In the extreme front is placed the front gunner's cockpit. Immediately behind him, and on the left-hand side of the machine, sits the pilot; beside him is a folding seat for another passenger.

Between the pilot's seat and the rear gunner's cockpit are placed the two main petrol tanks, which occupy the full width of the fuselage.

The original intention of the designer was evidently to fit tanks of smaller capacity, shaped in such a way as to provide a communication tunnel between the pilot's seat and the rear gunner's cockpit. For this purpose the wooden bulkheads on each end of the tank space are deeply cut away on the left-hand side. With the existing arrangement of tanks, however, no interchange of personnel is possible.

Another small point of interest is the inclination of the back of the pilot's seat; for this purpose careful consideration of space has resulted in a wedge-shaped piece being let into the forward tank, indicating again that all possible means have been adopted to get the C.G. sufficiently forward.

The rear tank is of identical construction, and also possesses this wedge-shaped arrangement. In this case, however, the wedge-shaped piece represents waste of space.

The rear gunner's cockpit is roomy and provided with a folding seat. Aft of it, the fuselage is furnished with an elaborate gun tunnel, which, however, differs very markedly from that which was incorporated in the earlier Gotha designs, in which the fuselage was completely covered in as to its top surface, and the tunnel was only used for a gun mounted on the floor of the cockpit. In the present design, the tunnel is furnished with a V-shaped opening in the upper surface, so that the gun mounted on the top of the fuselage can fire backwards and downwards through an arc of about 25 deg. laterally and about 60 deg. vertically. This is shown in Fig. 7.

The inside of this tunnel is lined with three-ply wood, and its arrangement is clearly shown in Fig. 8. On the floor of the fuselage, in the rear gunner's cockpit, a mount is provided for a second gun, but in none of the Gotha machines brought down was a gun fitted at this point.

It is noted that to give the rear gunner a greater feeling of security, and to prevent any loose articles from falling out, wooden cross pieces are fitted up immediately in front of the tunnel opening. At the forward end of the tunnel the fuselage is evidently weak, as it was at this point that breakage occurred in most of the machines brought down.

Fig. 9 illustrates one of the brackets by means of which the fuselage is secured to the upper main plane; it carries a short stream-lined strut. It will be noticed that the characteristic German dome-shaped clip is used, but that in this case the usual welded joint is replaced by rivets. This bracket occurs at the after bulkhead immediately behind the rear petrol tank; the dotted lines proceeding from the small clip indicate how this bulkhead is cut away so as to provide, in the original scheme, an opening through which the personnel could squeeze in order to change places if necessary.

(To be continued.)

Fighting in the Air.

THE winter session of the Royal Aeronautical Society was opened at the Central Hall, Westminster, on November 8th, when Maj. Cochrane Patrick, D.S.O., R.A.F., lectured on "Fighting in the Air." As this lecture was of the popular order, it was somewhat elementary, Maj. Patrick explaining in an interesting manner some of the problems which have to be mastered in connection with modern air-fighting.

He traced the progress of air fighting and the development

of special machines to meet the continually changing conditions, and then went on to enlarge upon the various aspects of such questions as camouflage, the effect of the sun, mist clouds, &c., the various methods of approach from below, above, in front and from the east, then going on to speak of formation flying in several kinds of work.

Not the least interesting part of the lecture was the series of diagrams by the aid of which Maj. Patrick made clear such technical questions as the deflection of the machine gun, sighting, &c.

THE ROYAL AERO CLUB OF THE U.K.

OFFICIAL NOTICES TO MEMBERS.

SPECIAL COMMITTEE MEETING

A SPECIAL MEETING of The Committee was held on Thursday last, the 7th inst., when there were present:—Brig.-Gen. Sir Capel Holden, K.C.B., F.R.S., in the Chair, Mr. Ernest C. Bucknall, Mr. G. B. Cockburn, Lieut.-Col. F. K. McClean, R.A.F., Mr. T. O. M. Sopwith and Lieut.-Com. H. E. Perrin, R.N.V.R., Secretary (in attendance).

Election of Members.—The following New Members were elected:—

Maj. Samuel Blackley, R.A.F.
 Capt. Cyril Wellesley Carleton, R.A.F.
 Arthur Cox.
 Maj. Edelsten Dalziel, R.A.F.
 Maj. Frank Thomas Digby, R.A.F.
 Sec. Lieut. Sidney Harry Fitter, R.A.F.
 Dashper Edward Glynn.
 Capt. K. G. S. Hatfield.
 Capt. Francis Herbert Hodgson, R.A.F.
 Stanley Howes.
 Lieut.-Col. Bertrand Lawrence Huskisson, R.A.F.
 Lieut. John Edmund Lord (Loyal North Lancashire Regt.).
 Lieut.-Col. Robert Hilton Jones, R.A.F.
 Capt. Thomas Frederick Wailes Thompson (Welsh Regt.) (S.R.)
 Lieut. John Gustave Walser, R.A.F.
 Lieut. Frederick Charles Wilton, R.A.F.
 George Arthur Wingfield.
 Horace Matthew Wyatt.

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Lieut.-Col. C. E. MAUDE, R.A.F.

Colonel R. H. MORE, C.M.G., R.A.F.

Secretary:

Lieut.-Com. H. E. PERRIN, R.N.V.R.

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Total, November 12th, 1918 13,855 0 3

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 H. E. PERRIN, Secretary.

THE ROLL OF HONOUR

(When an Officer is seconded from the Army, his unit is shown in brackets.)

Published November 6th

Killed

Bark, Lieut. N.
 Billington, Lieut. F. N.
 Densham, Sec. Lieut. W. J.

Harrison, Sec. Lieut. E. A.
 Pepper, Lieut. B.
 Pritchard, Sec. Lieut. J. L.

Previously Missing, now reported Killed

Lockley, Lieut. A. H. (Aus. F.C.).

Wounded

Alcock, Sec. Lieut. R.
 Blake, Lieut. G. P.
 Dines, Capt. R. J.
 Drake, Sec. Lieut. T. N.
 Gillis, Capt. G. H. (Can. A.P.C.).

McBride, Lieut. A. (W. Ont.).
 Tait, Lieut. H. W.
 Walker, Capt. J. McD.
 Whitwell, Sec. Lieut. E. J.
 Winham, Sec. Lieut. A. H.

Previously Missing, now reported Wounded and Prisoner

Foster-Sutton, Lieut. S.W.P.

Missing

Baker, Sec. Lieut. T. M.
 Cave, Sec. Lieut. C. F.
 Fountain, Sec. Lieut. C. C.

Lewis, Sec. Lieut. J. A.
 McNish, Sec. Lieut. H.
 Winkler, Lieut. M. H.

Previously Missing, now reported Prisoners

Anderson, Sec. Lieut. D. S.
 Burton, Lieut. D. F.
 Glazebrook, Lieut. R. F.

Hollingsworth, Lieut. R. L.
 Lovell, Sec. Lieut. C. E. A.
 Thornley, Sec. Lieut. S. C.

Prisoner

Tapping, Sec. Lieut. A.

Published November 7th

Killed

Coons, Lieut. J. W.
 Gilchrist, Sec. Lieut. A.

Matthey, Sec. Lieut. S. E.
 Peacock, Sec. Lieut. T.

Died of Wounds

Booker, Lieut. C. S.
 O'Hara-Wood, Maj. A. H.

Pitot, Sec. Lieut. M. L.

Missing, believed Killed

Topping, Sec. Lieut. J.

Wounded

Bennett, Sec. Lieut. S. L.
 Butler, Sec. Lieut. A. H.
 Collis, Sec. Lieut. A. R.
 Dunn, Sec. Lieut. G. E.
 May, Lieut. G. T. C.

McHenry, Sec. Lieut. F. L.
 Proudlove, Sec. Lieut. H.
 Scottorn, Sec. Lieut. J. V.
 Soutar, Sec. Lieut. E.
 Tysoe, Sec. Lieut. D. F.

Missing

Brain, Sec. Lieut. W. J.
 Dunn, Sec. Lieut. M. W.
 Evans, Sec. Lieut. A. W. R.
 King, Sec. Lieut. P.
 Mulrow, Lieut. S. L.
 Reynolds, Maj. L. G. S.

Saunders, Sec. Lieut. O. R. S.
 Simson, Sec. Lieut. J. A.
 Thomson, Lieut. R. W. L.
 Vernon, Sec. Lieut. R. G.
 Windover, Capt. W. E.

Previously Missing, now reported Prisoners

Ayrton, Capt. F. A.
 Clack, Lieut. L. A.
 Flintoft, Lieut. H. T.
 Illingworth, Lieut. C. F. W.

Jenkins, Sec. Lieut. B. P.
 Loupinsky, Lieut. J.
 Shell, Lieut. W. H.
 Smith, Sec. Lieut. F.

Prisoners

Steele, Lieut. W.

Weston, Sec. Lieut. J. S.

Published November 8th

Killed

Canning, Sec. Lieut. E. H.
 Connor, Sec. Lieut. W.
 Forrest, Lieut. L. J.

Kelty, Sec. Lieut. G. W. A.
 Phillips, Sec. Lieut. D. R.
 Spinks, Sec. Lieut. C. E.

Died

Deards, Lieut. C.

Wounded

Barker, Lieut. S. W. (Aus. F.C.).
 Burbidge, Capt. L. W.
 Cannell, Lieut. H. F. C. (I.A. Cav.).
 Carr, Sec. Lieut. G. H.
 Darroch, Capt. D. M.
 Hesketh, Sec. Lieut. A.

Holmes, Sec. Lieut. J. A.
 Loly, Lieut. F. M.
 Oliver, Sec. Lieut. J. A.
 Peer, Sec. Lieut. H. E.
 Wright, Lieut. E. W. (Aus. F.C.).

Previously Missing, now reported Wounded and Prisoner

Hand, Capt. E. McN.

Sanderson, Sec. Lieut. C. B.

Previously Missing, believed Wounded and Prisoner, now reported Prisoner

Crawford, Sec. Lieut. W. I.

Missing

Collins, Sec. Lieut. J. I.
 Cresswell, Sec. Lieut. R. N.
 Pennal, Sec. Lieut. H. L.

Reed, Sec. Lieut. F. H.
 Silk, Sec. Lieut. R. W.
 Sorley, Sec. Lieut. J. T.

Previously Missing, now reported Prisoners

Gwyer, Sec. Lieut. N. E.
 Hilton, Sec. Lieut. T. R.

Taylor, Lieut. R. E.

Published November 9th

Killed

Barker, Sec. Lieut. J.
 Cook, Sec. Lieut. M.
 Edgecombe, Sec. Lieut. C. H.

Saunders, Sec. Lieut. L. L.
 Thomas, Lieut. B. S. B., M.C.

Died of Wounds

Forster, Sec. Lieut. D.

Potts, Sec. Lieut. G. J. L.

Wounded

Brewer, Sec. Lieut. W. M.
 Bridge, Sec. Lieut. A. J.
 Chisholm, Lieut. D.
 Clark, Lieut. M. J.

Fuller, Sec. Lieut. A. H.
 Heaton, Sec. Lieut. B.
 Netherpton, Lieut. E. C.
 Whichelow, Sec. Lieut. A.

Missing

Brown, Sec. Lieut. G.
 Bruce, Sec. Lieut. A. P. C.
 Coomer, Sec. Lieut. F. H. V.
 Gasson, Lieut. F. A. B.

King, Sec. Lieut. S.
 Rath, Lieut. H. C.
 Smith, Lieut. L. H.
 Thomas, Sec. Lieut. H.

Previously Missing, now reported Missing, believed Prisoner

Jackson, Lieut. W. E.

Previously Missing, now reported Prisoners

Harvey, Lieut. G. S.
 Heine, Lieut. R. W.
 Hill, Sec. Lieut. G. A. R.

McCracken, Lieut. E. C. J.
 Metson, Sec. Lieut. G. F.

Previously Missing, now reported Interned

Cobham, Lieut. R. L.
 Gallagher, Lieut. E. G.

Taylor, Lieut. E. E.

Published November 11th

Killed

Allen, Capt. D. G. A.
 Donaldson, Sec. Lieut. D. L.
 Drummond, Sec. Lieut. J. C. G.

Hadlow, Sec. Lieut. A. L.
 Russell, Sec. Lieut. W. H.
 Sawyer, Sec. Lieut. C. H.

Wounded

Adams, Sec. Lieut. O. H.
 Aulph, Lieut. C. T.
 Biddle, Sec. Lieut. S. C. H.
 Bourns, Lieut. A. E.
 Cope, Sec. Lieut. W. N. L.

Grant, Sec. Lieut. C. A.
 Knott, Sec. Lieut. C. R.
 Layton, Lieut. D. M. (W. Ont.)
 Tilt, Sec. Lieut. E.
 Whitfield, Sec. Lieut. R.

Missing

Aitken, Sec. Lieut. A. H.
Desy, Sec. Lieut. J. R.
Crame, Lieut. J. W. (Cent. Ont.).
Haynes, Capt. G. C., M.C.
Lister, Sec. Lieut. R.

MacLean, Sec. Lieut. M.
Moir, Sec. Lieut. A. E.
Pratt, Sec. Lieut. A. A. R.
Rogers, Sec. Lieut. T. H.
Thomas, Sec. Lieut. D. U.

Previously Missing, now reported Prisoners

McDonald, Sec. Lieut. J. C. J.
Papenhus, Lieut. M. T. S., D.F.C.
Papworth, Sec. Lieut. A. S.
Pugh, Lieut. J. A.

Previously reported Prisoner in Bulgarian hands, now released
Rowan, Lieut. A. (K.R.R.C., attd. R.F.C.).

Published November 12th

Killed

Carruthers, Sec. Lieut. W. J.
Doolittle, Sec. Lieut. C. M.
Lamb, Sec. Lieut. H. J.
McChlery, Sec. Lieut. J. M.
Raby, Sec. Lieut. L. F.

Died of Wounds

Gardener, Sec. Lieut. J. V.

Wounded

Allan, Lieut. A. W.
Barkell, Sec. Lieut. T. H. (Aus. F.C.).
Bryant, Lieut. E.
Firmin, Sec. Lieut. C. A.
Foreman, Capt. J. W.
Harper, Sec. Lieut. H. G.
Mignault, Lieut. B.
Scott, Lieut. A.
Wallis, Lieut. C. R. A.
Whitburn, Lieut. F.

Previously Missing, now reported Wounded and Prisoner
Coles, Sec. Lieut. G. T.

Missing

Allan, Sec. Lieut. C. M.
Greaves, Sec. Lieut. N.
Hall, Lieut. E. W. O.
Howard, Lieut. F. (Aus. F.C.).
Kilsby, Sec. Lieut. M. J. (Aus. F.C.).
Lewis, Sec. Lieut. H. G.
Nash, Capt. T. W.
Orr, Lieut. O. J.
Sanders, Sec. Lieut. W.
Sims, Sec. Lieut. P. J. (Aus. F.C.).
Wareing, Capt. G. W.

Previously Missing, now reported Prisoners

Chalkin, Sec. Lieut. W. J. N.
Courtney, Sec. Lieut. W. E. L.
Davies, Sec. Lieut. H.
Evans, Sec. Lieut. W. D.
Fairhurst, Sec. Lieut. A.
Guild, Sec. Lieut. C.
Sykes, Lieut. J. A.
Taylor, Sec. Lieut. L. G.

HUCKS—A GREAT AVIATOR

By the death of Capt. Bentfield Charles Hucks, which has occurred from pneumonia following on influenza, there passes from our midst one of the earliest and greatest pilots in the history of British aviation, and it seems doubly tragic to think that he died on the very eve of the glorious triumph of the Allied forces, towards which he had contributed so splendid a share.

Hucks was born in 1884 at Stanstead, Essex, and was the youngest son of a consulting engineer. He was a first-class motorist, and it was only natural that to one of his temperament the new science of flight should have appealed strongly from the very first. He took his Royal Aero Club certificate on May 30th, 1911, on a Blackburn monoplane at Filey, but he had been actively associated with flying since 1910, for he was assisting Grahame-White at the Blackpool meeting, and also accompanied him on the famous visit to the United States. In the autumn of 1911 he gave a most successful

series of exhibitions in the West of England, and from that date down to the outbreak of war he rendered magnificent service to British aviation by the remarkable demonstrations of the progress of this science which he gave in almost every part of the country. It is probably no exaggeration to say his name will be remembered by hundreds of thousands of people who, through him, saw flying for the first time in their lives, and thus realised it had become an accomplished fact and not a mere dangerous experiment. This educational work has perhaps never been fully appreciated as it deserves.

To record all the many fine flights he made during his career would be difficult, but it is worth mentioning that he was certainly one of the first to recognise the commercial possibilities of the aeroplane and to demonstrate them by carrying goods from one town to another—long ago, be it remembered. On the eve of the General Election it is also interesting to know that he put an aeroplane to political uses for the first time at the Midlothian election in 1911 by distributing from the air in various parts of that constituency the literature of one of the candidates.

At the outbreak of war he at once volunteered for active service, and did excellent work in France for a time until pleurisy unfitted him for the strenuous conditions of aerial fighting. After his recovery he took up the testing of new machines, being attached by the R.F.C. to the Aircraft Manufacturing Company for this purpose. The unique experience he had gained during his pre-war flying, his skill in looping and other evolutions, and his knowledge of active service, stood him in good stead, and when it is possible to relate in full the valuable work he has done for the Air Services, as one may devoutly hope may be done at no distant date by Mr. Holt Thomas, or someone equally in a position to appraise his merits, Hucks will hold a prominent place in the list of brave men who have done so much for their country and for the good of the world in general.

He was essentially a brave pilot, for none knew better than he the risks of research work in the air. His technical knowledge was such, however, that he could study a machine, however new its design or startling its features, on the ground before taking any undue risks. In other words, he could with confidence rely on his brains to reduce to the lowest possible point the dangers of his work, and the fact that he has now succumbed to an ordinary kind of illness, after flying in the aggregate probably more than any living pilot, shows the brilliance of his work. He was always spoken of by those who knew him well as a really steady pilot. Everyone had confidence in him.

Hucks had a delightful personality when one knew him. He was by nature serious and somewhat retiring, and not given to making friends rapidly, but had an exceptionally keen sense of humour. I shall always treasure the memory of a week in Paris with him a year ago, and the adventures of our flight back to England, interrupted in the middle by a thrilling night of air raids in Calais. Sheltering together under a heavy bombardment for many hours one gets a more intimate insight into the character of a friend than might be possible under other circumstances, and the friendship of Hucks meant far more to me from that night forward.

I would like to suggest that some permanent and visible memorial be erected in due course in the neighbourhood of Hendon, where he accomplished so much of his life's work. Meanwhile the deepest sympathy will be undoubtedly offered by his countless friends to his relatives and to his colleagues at the Aircraft Manufacturing Company, whose loss is severe. There will never be another Hucks. May he rest in peace.

D. W. T.



The late Capt. B. C. Hucks, R.A.F., who last week succumbed to pneumonia, following influenza. Capt. Hucks, who was one of the first exhibition flyers and the first Englishman to loop the loop, has for the last four years been engaged as test pilot of the latest types of military aeroplanes, and was closely associated with the Aircraft Manufacturing Co., Ltd.

THE AUSTRIAN BERG SINGLE-SEATER

200 H.P. AUSTRO-DAIMLER ENGINE

(Concluded from page 1227.)

THE wings of the Berg single-seater are characterised by the same simplicity—as regards their construction—as that found in the other parts of this machine, a simplicity, be it said, which does not result in scamped workmanship and hurried finish, but which bears evidence of careful design,

German aeroplanes. Of the merits of the Berg as a fighting machine we have no information, but from a constructional point of view it shows many features that might with advantage be studied for cheap and rapid production of commercial aeroplanes after the war.

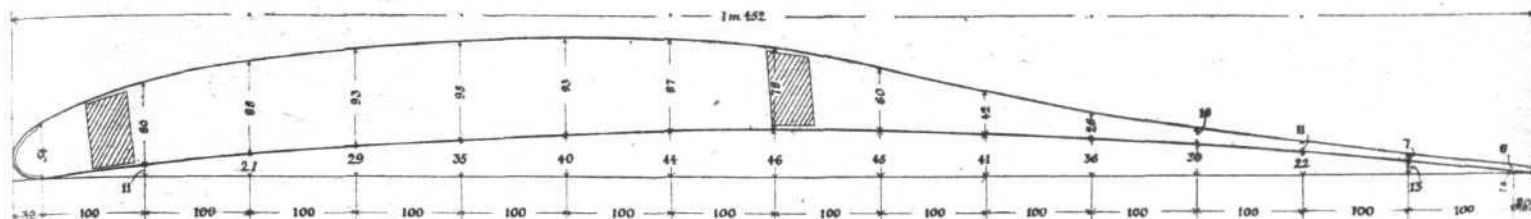


Fig. 10.—Wing section of the Berg single-seater. All the dimensions are in mm.

with ease of production always kept in mind. The timber employed for the wings is of excellent quality, better than that found in the average German machine. The fittings,

The wing section of the Berg is somewhat unusual in that it has a pronounced reflex curvature of its trailing edge (upper camber), while the maximum camber of both upper and lower surface is much farther back than is usually the case in modern wing sections. This is clearly shown in Fig. 10. One result of the reflex curvature of the top camber is to

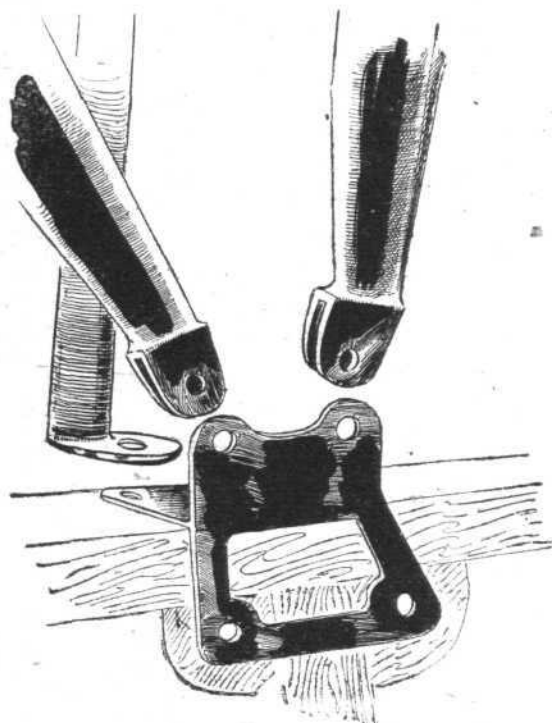


Fig. 11.—Attachment of front centre-section struts to fuselage of the Berg single-seater.

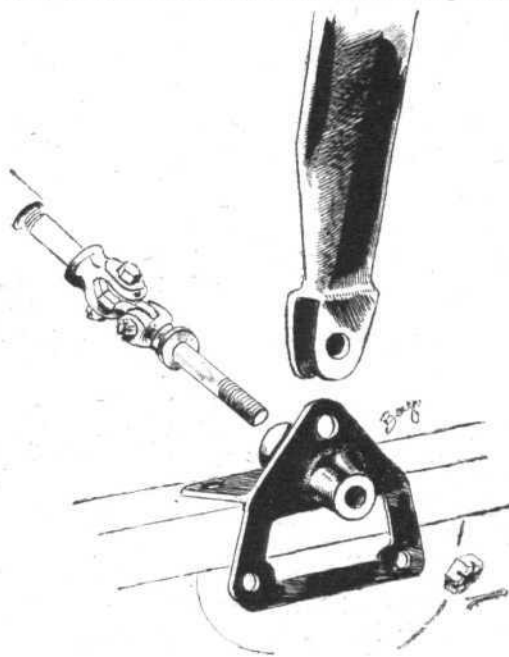


Fig. 12.—Attachment of rear centre-section struts to top longerons on the Berg single-seater.

while apparently combining good strength with light weight, are as simple as possible, and welding is resorted to to a much smaller extent than is the case with the majority of fittings in

provide a very flexible trailing edge, as the ribs become very thin towards the rear. It is probable that in this way a fair amount of lateral stability is provided, since a gust

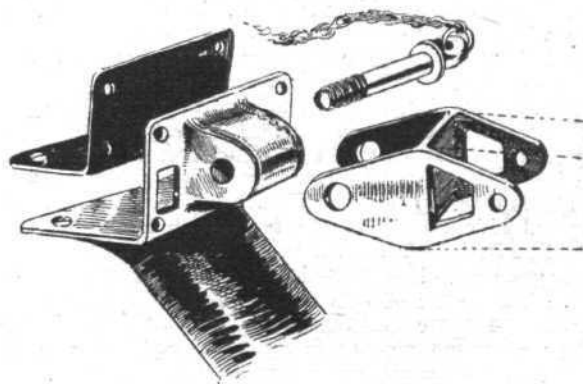
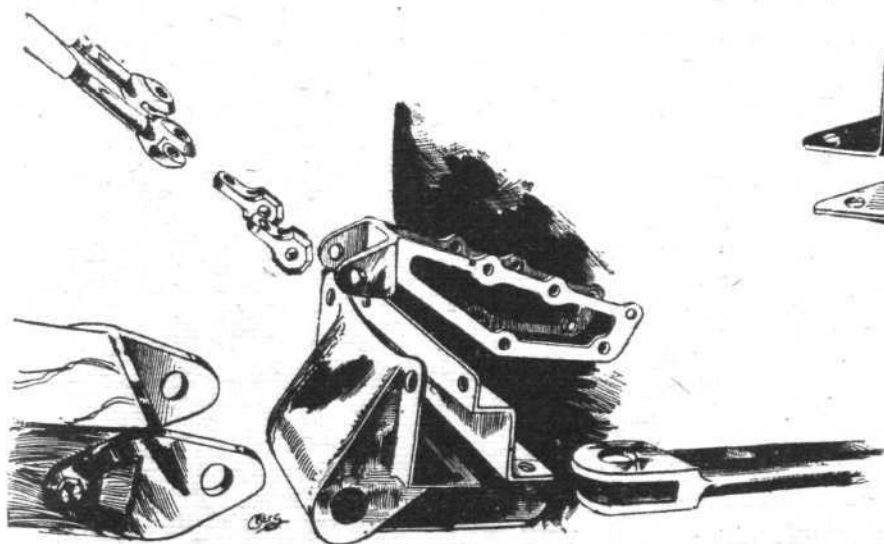


Fig. 13.—Attachment of lower rear spar to fuselage on the Berg single-seater.

Fig. 14.—Attachment of front lower spar and of lift cables to body on the Berg single-seater.

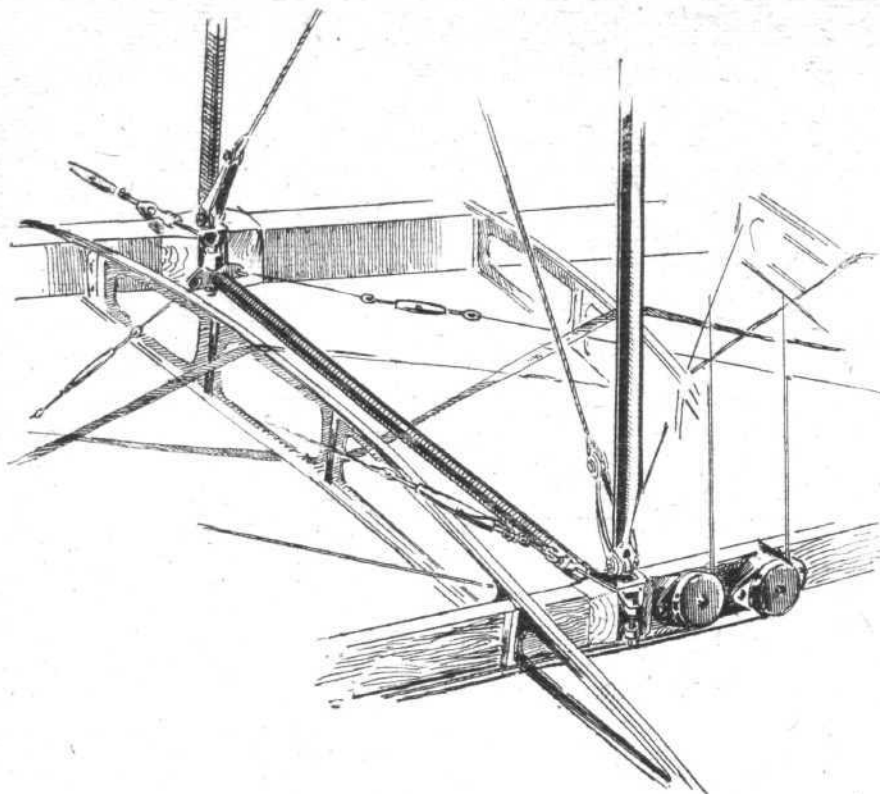


Fig. 15.—General sketch of internal bracing and of inter-plane strut attachment on lower plane of the Berg single-seater.

striking a wing will deflect the trailing portion, thus virtually reducing the lift, and the equilibrium of the whole machine may not, as a consequence, be disturbed to the same extent as would be the case in a machine having a rigid section. It is also possible that the reflex curvature may reduce to some extent the travel of the centre of pressure, and so improve the longitudinal stability. As regards the efficiency of this section we have no data available.

Constructionally, the wings are built up of spruce spars of the box type, with ribs having spruce flanges and poplar webs. The webs are fret-sawed for lightness, and the solid portions between lightening holes are reinforced by vertical pieces of wood, riveted through the webs. The leading edge is also of spruce, hollowed out to a U section. The trailing edge is in the form of a wire. Between the spars there is a zig-zag formation of tape, passing over one rib and under the next and so on.

The top plane, which is in one piece and has no dihedral angle, is supported from the body by N struts sloping outward slightly, as shown in the scale drawings published in our issue of October 24th. These struts are stream-line steel tubes, and are pin jointed so as to allow of adjustment when rigging. The fore-and-aft adjustment—which also serves to bring the wings at right angles to the centre line of the body—is carried out by having portions of the diagonal struts provided with a thread-and-locknut arrangement. The lateral adjustment is carried out in a similar manner. The centre section struts form a letter W, as seen in front view, and the inner legs are provided with the same form of adjustment as are the diagonal side struts. In the rear bay the lateral bracing is in the form of cables, crossing above the body, since these are out of the way of the engine. By using struts in the front bay and placing them in a W formation the difficulty of clearing the engine is overcome, and adjustment still rendered possible. Fig. 11 shows the attachment of the front and diagonal side-struts to the top *longeron*. The struts have forked ends, which fit over the vertical lugs of the base plate that rests on and is bolted to the *longeron*. Directly bolted to the inner part of this base plate is the foot of the strut that provides lateral bracing for the front bay. This strut is rigidly attached to the *longeron*, but has the thread-and-locknut adjustment at its upper end. The attachment of the rear side-strut is shown in Fig. 12. This is similar to the attachment of the front struts, but there is the difference caused by the fact that in this bay the lateral bracing is in the form of cables. The manner in which this cable is attached to the base plate is shown in the sketch.

The attachment of the lower planes to the fuselage is shown in the sketches, Figs. 13 and 14. The rear spar attachment is shown in Fig. 13. To the outer base plate is

welded the lug to which the spar is attached by a forked spar box and a quick-release bolt. The rear strut of the undercarriage is also welded to this base plate, but to the lower horizontal part of it.

Fig. 14 shows the attachment of the lower front spar and of the lift cables. The spar attachment is, it will be seen, very similar to that of the rear spar. There is, however, a horizontal tube running across the fuselage, thus resisting any tension there may be on the spars, while the lift cable attachment is also extended some distance in the manner shown, so as to spread the load to other of the members of which the bulkhead is composed.

The fittings for the internal bracing of the planes are of a very neat and simple type. The compression struts are, in the form of steel tubes, and the drift bracing is stranded cables, while the anti-drift wires are of the solid type. The inter-plane struts are stream-line steel tubes, forked at their ends and fitting over eyebolts passing vertically through the spars. The general arrangement of these attachments and of the internal bracing system are indicated in Fig. 15. An analytical

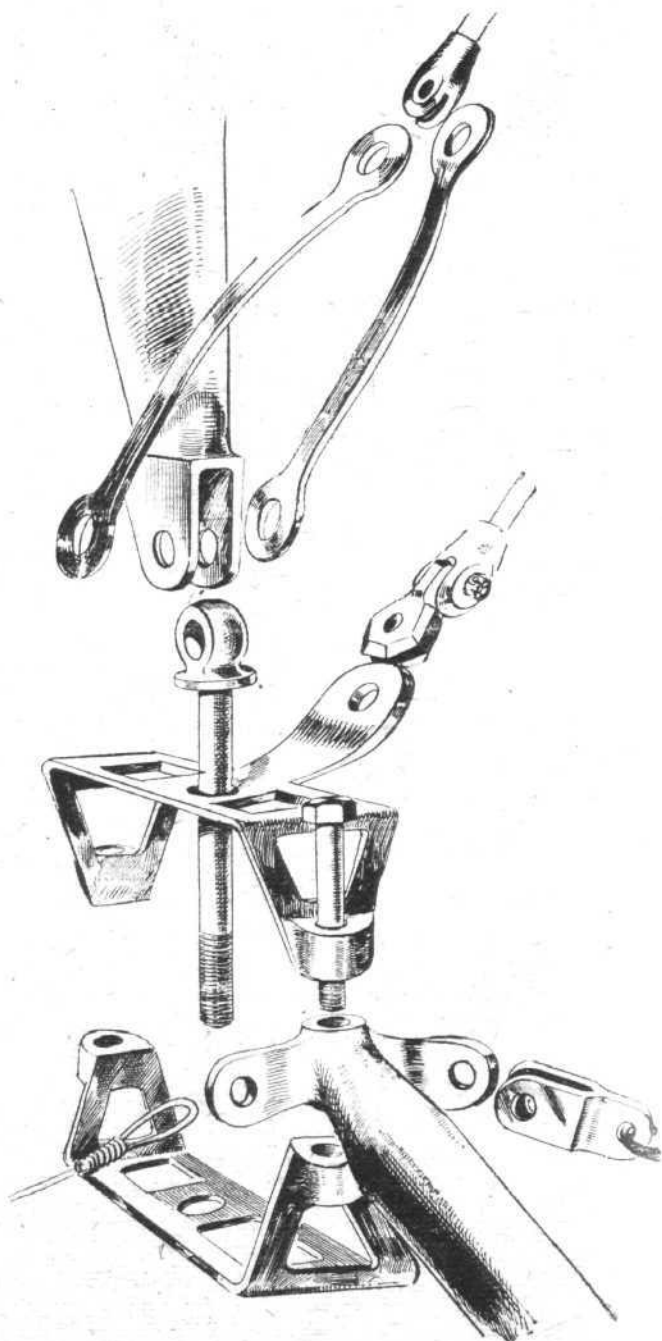


Fig. 16.—Analytical sketch of inter-plane strut attachment, lift cable attachment, internal drift bracing and compression tube in lower plane of the Berg single-seater.

sketch of the fitting is given in Fig. 16. It consists of two forgings, one placed on top of the spar and one on the lower side of the spar, the two being held together by vertical bolts passing on the outside of the spar. In addition

whole joint is very neat when in place, and is shown from the outside in Fig. 17. This sketch also shows the mounting, on the lower spar, of the aileron cable pulleys.

In last week's issue we referred to the aileron control system, in which the direct cable from the controls passes to the forward arm of the aileron crank lever, thus pulling the aileron up, while the pulling down of the opposite aileron is left to the return cable. It was pointed out that this system, which is rather the reverse of what is usual practice, has probably been adopted because of the warped ailerons, which may possibly owing to their upward turned tips come under a negative load before the opposite aileron begins to give a positive lift. The aileron and a portion of the upper plane are shown in Fig. 18. The aileron, which is of tubular construction, is hinged to a false spar as in nearly all machines of enemy origin. It will be noticed that this portion of the top plane is generously provided with three-ply reinforcement. The

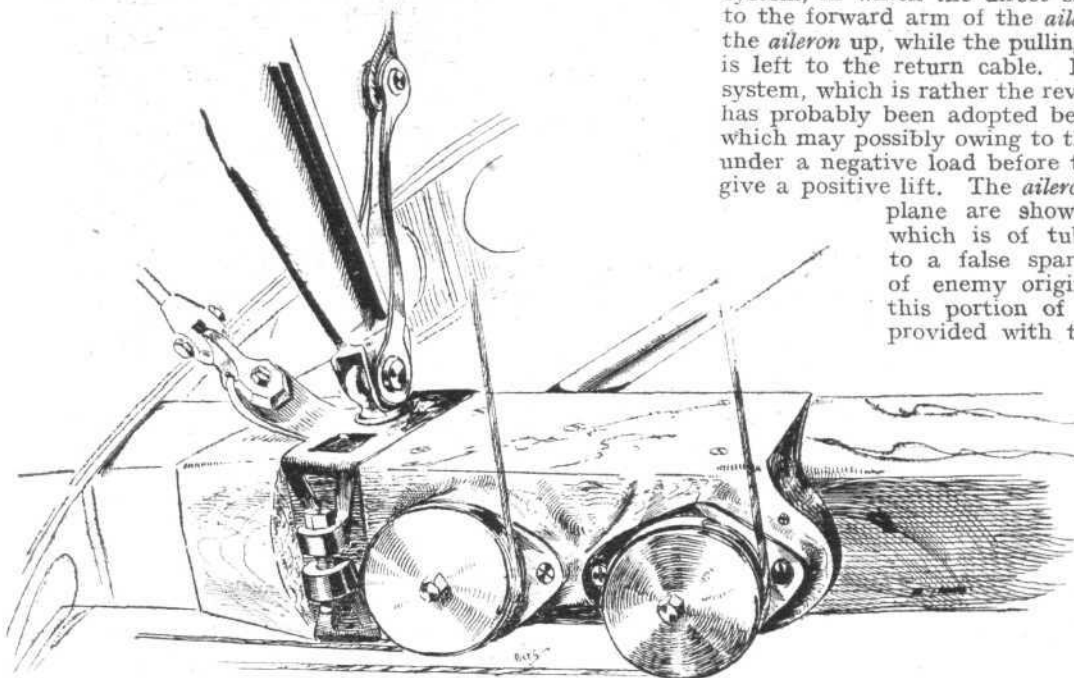


Fig. 17.—View from outside of the strut fitting dissected in Fig. 16, also showing mounting of pulleys for aileron control cables.

tion there is an eyebolt going through the spar, and to this is anchored the forked end of the inter-plane strut. The lift cable is attached by means of a shackle to a lug formed on the top forging. The incidence cable is attached to the horizontal bolt passing through the fork end of the strut and through the eyebolt, by two very long chain links as shown. The compression tube between the wing spars also occurs

horizontal aileron crank lever works in a slot formed by triangles of ply-wood, and the control cables pass from the cranks over pulleys as shown in Fig. 17, and hence to the controls, passing through the bottom plane.

Camouflage.

The Berg single-seater is somewhat different from German machines in its camouflage, possibly because it has been used

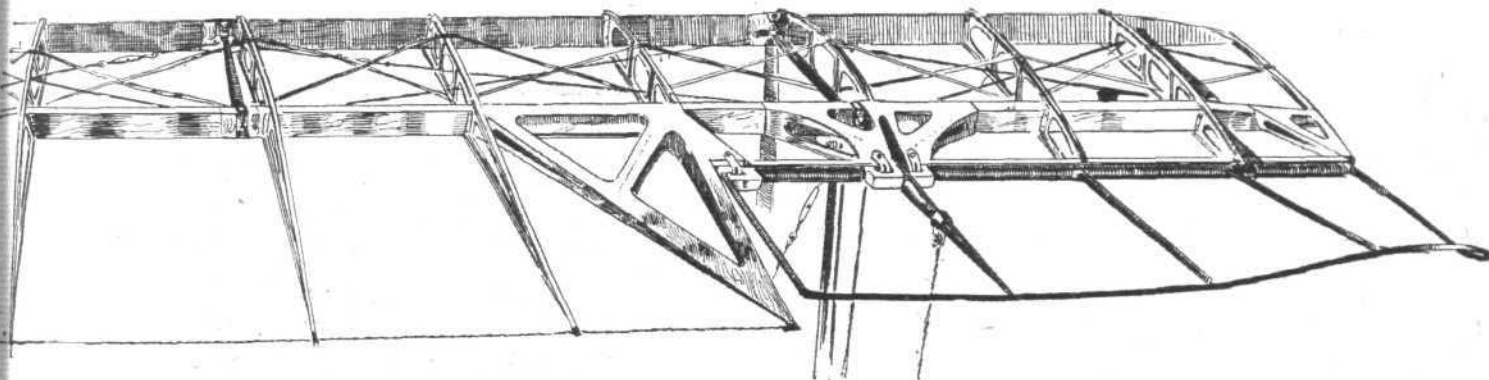


Fig. 18.—Sketch showing part of top plane and one of the ailerons of the Berg single-seater.

at this point, and is attached to one of the vertical bolts on the side of the spars. This is done by welding to the end of the compression tube a strip of sheet steel forming the lugs of the internal bracing, and through the solid part of metal thus formed bore a hole for the vertical bolt. The

on the Italian front, where the ground is of different colouring. The whole of the tail and the under surface of both main planes are painted a pale sandy yellowish brown, while the body and top surfaces of the planes are painted in addition with irregular streaks of a darker brown.

Sir D. Henderson, K.C.B., D.S.O.

The following temporary appointment was announced in the *London Gazette* of November 6th:—

Military Counsellor (graded for purposes of pay as G.O.C.-in-C., 2nd Class, without allowances).—Lieut.-Gen. Sir D. Henderson, K.C.B., D.S.O. (October 7th).

We understand that Lieut.-Gen. Henderson is acting as Commandant of English troops passing through Paris and the immediate district.

A Demobilisation Board for Munition Works

The Minister of Munitions has appointed a Demobilisation Board to deal with all measures affecting the demobilisation of munitions works and the liquidation of contracts, apart from the questions assigned to the Resettlement Board under the Minister of Labour.

The Board will consist of the following members:—Sir James Stevenson, Bt., chairman; Mr. H. H. Piggott, C.B.E., secre-

tariat; Sir Stephenson Kent, K.C.B., labour; Mr. W. T. Layton, C.B.E., priority; Sir Arthur Duckham, K.C.B., liquidation of contracts (aircraft and engines); Sir Gilbert Garnsey, K.B.E., liquidation of contracts (all other contracts); Mr. Alexander Walker, disposal and sale of stores; Sir Keith Price, disposal of factories, &c.; and Major-General the Hon. Sir F. R. Bingham, K.C.M.G., military services.

The Secretary of the Ministry (Sir W. Graham Greene, K.C.B.), the Assistant Secretary (Mr. J. E. Masterton Smith, C.B.), and the Chairman of the Finance Committee will be *ex-officio* members of the Board. The Board will be assisted by the following expert advisers:—Mr. S. Dannreuther, C.B., Sir Philip Henriques, K.B.E., Sir John Mann, K.B.E., Mr. W. J. Larke, O.B.E. Financial Department representatives will also be attached to members of the Board.

The Board will continue to be advised on Labour matters by the Resettlement Board under Sir Stephenson Kent, K.C.B., who remains a member of the Munitions Council.

THE 200 H.P. AUSTRO-DAIMLER AERO ENGINE

[Issued by Technical Department, Aircraft Production, Ministry of Munitions.]

(Concluded from page 1259.)

Ignition

THE two Bosch Z.H.6 type magnetos are driven by bevel gears off the bottom end of the camshaft driving spindle

The air supply to the carburettors is taken from the false bottom, through a passage cast in the side of the crank-chamber; an extra air valve is fitted round the choke tubes.

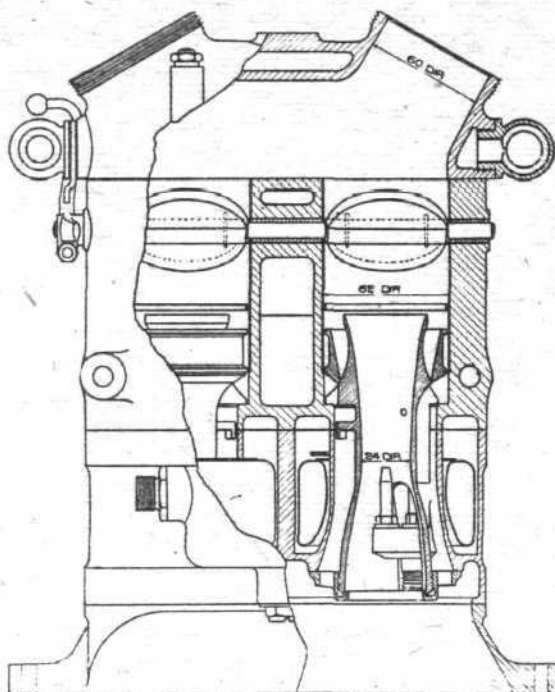
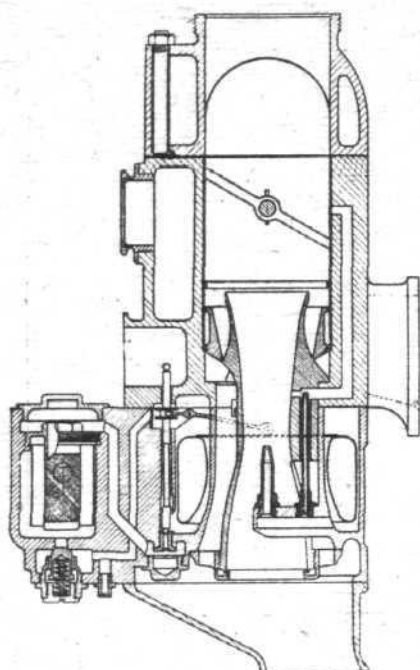


Fig. 22.—Semi-diagrammatic sectional views of carburettor.

at the front of the engine. The magnetos are mounted on aluminium bed plates which are bolted to the top face of the crank chamber, which forms an extension over the auxiliary oil tank. As will be noticed in the illustrations of the engine, the magnetos are placed diagonally, each magneto being driven at an angle of 52° to the crankshaft axis, in a horizontal plane.

Two Bosch three-point sparking plugs are fitted to each cylinder on the same side of the engine, being screwed into the combustion heads just below each inlet valve; each magneto, of course, serves one plug in each cylinder. The magneto controls are interlinked with the throttle control, so that when the engine is throttled down the ignition is automatically retarded. The order of firing is as follows:—Propeller—1, 5, 3, 6, 2, 4.

As shown in the photograph of the induction side view of the engine, Fig. 1, all the high tension leads from the magnetos are carried in a particularly neat form of cable carrier, which is made of red sheet fibre and is carried on cast aluminium brackets attached to the top of the crankcase.

Carburettor and Induction System

The large duplex carburettor is placed on the left side of the engine, and supplies the mixture through two separate galvanised steel induction manifolds; each manifold feeds three cylinders, and is lagged with asbestos. The carburettor is built up in three sections. The bottom section—which is made of gun metal—contains the two float chambers and the four jets. A common filter chamber fitted with the usual gauze strainer is cast on the front of this portion. The centre portion of the carburettor—which is made of aluminium—contains the butterfly throttles, and the upper portion of the choke tubes.

A large air chamber cast round the throttle barrels is used as the outlet for hot air from the crankcase and thus helps to warm the mixture. The top portion of the carburettor consists of a cast aluminium chamber, in which the supply for the two carburettors is united, thus ensuring an equal supply to each manifold. This chamber has a water jacket cast round it, which is connected to the main water circulation system by a pipe at each end.

The annular float chambers encircle the choke tubes. Two jets are fitted in each carburettor, the capacity of the main jet being 35 c.c. per min., and that of the pilot jets 5.8 c.c. per min.

The filter is fitted with a pressure release valve which discharges into a small chamber below the filter, where it unites with the overflow from the float chambers.

Petrol Tanks.

In the Austrian "Berg" biplane scouts, fitted with these Austro-Daimler engines the main petrol tank is under pressure, and is situated at the bottom of the fuselage, behind the engine.

A small gravity tank holding $3\frac{1}{2}$ gallons is also fitted as an emergency fuel tank, just behind the engine in the upper part of the fuselage, and the total air endurance according to report is given at $2\frac{1}{2}$ hours at 1,000 feet.

Air Pump

The air pump for the petrol tank pressure is of the spring loaded plunger type, and is operated by a separate cam on the camshaft between the two rear cylinders. As shown in the sectional arrangement drawing of the compression release gear, it is mounted on the cover of the cast aluminium camshaft casing. A hand pressure pump is also fitted in the machine.

Water Pump

In Fig. 24 is given a sectional view of the complete water pump. This is of the centrifugal type, and as shown in the views of the engine is driven directly off the rear end of the

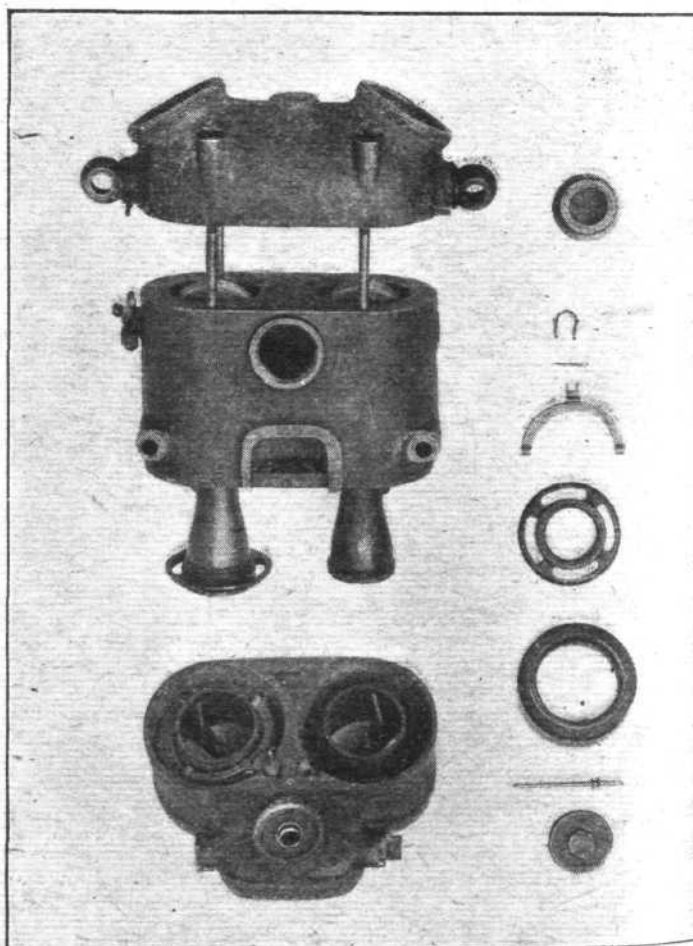


Fig. 23.—Parts of carburettor.

crankshaft by a bevel gear which is integral with a sleeve forming an extension shaft. This is attached to the rear end of the crankshaft, and also drives the gun interrupter gear through a worm gear on a transverse shaft.

The water pump spindle is inclined at an angle of 30° to the crankshaft and runs in phosphor-bronze bearings. The driving bevel gear floats on the end of the pump spindle, and is fitted with a large diameter thrust ball race and retaining spring, which, being at the bottom end of the spindle, are as far away as possible from the rotor of the water pump. Both the pump spindle bearings are well lubricated, through two drilled holes in the pump body and oil grooves cut in the spindle bearings, by a large self-acting grease lubricator

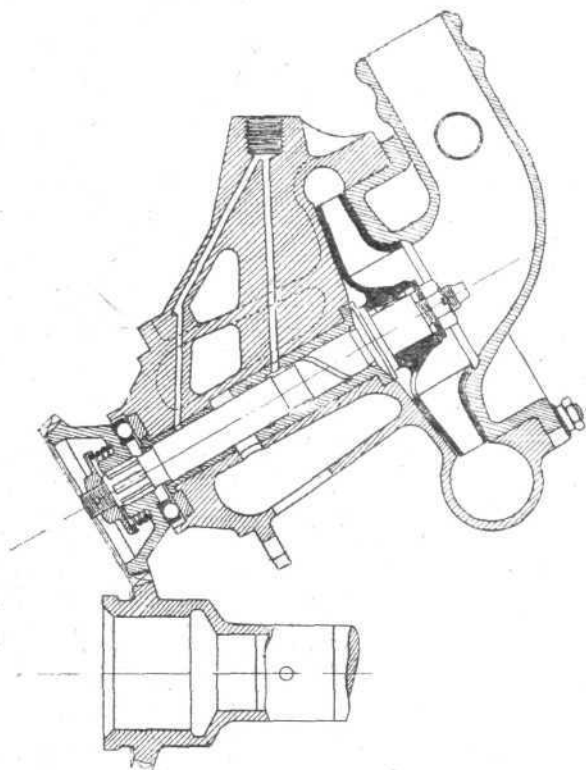


Fig. 24.—Section of water pump.

which is screwed into the cast aluminium water-pump body. The pump rotor is 112 mm. diameter, and is formed with six vanes of the usual Mercedes type. The rotor is keyed to the spindle and secured by a gun-metal nut and washer.

A conically faced shoulder is machined on the pump spindle directly beneath the rotor. This shoulder beds into the bevelled face of the bronze bearing, forming an efficient water joint. The water pump, although somewhat heavy in its construction, is well designed and is very accessible. The diameter of the intake passage through the cover is 36 mm., and the diameter of the delivery is also 36 mm.

Water Cooling System

A "V" type honeycomb radiator is used with this engine, and is mounted at the front of the engine, directly behind the propeller. (See Fig. 25.)

The capacity of the radiator is approximately four gallons, and a small barrel-shaped condenser, 4 ins. diameter and 5 ins. long, is provided on the top of the radiator, apparently to prevent boiling water from escaping and blowing back. No louvers or blind are fitted to prevent over-cooling.

From the bottom of the radiator water is circulated through the steel pipe to the inlet of the water pump and is delivered into the bottom of each of the cylinder water jackets. These are coupled together in the usual way by rubber joint rings and clips, both at the bottom of the water jackets and in the water passages above the valves in the cylinder heads. The construction of these joint rings is interesting, consisting of bevelled rubber rings, reinforced in the centre with a steel spring ring. The rubber joint rings are expanded into the outside of the conical faces of the steel water connections on the cylinders by the halves of a split aluminium ring, which are clamped together by a band clip of ordinary design. From the results and appearance of the engine during tests these water joints are very efficient. Circulating through the cylinder water jackets, the water passes to the top of the radiator through two passages cast in the front end of the aluminium camshaft casing. These water passages encircle the camshaft just behind the driving bevel gears.

Revolution Indicators

A flexible drive for the engine speed indicator is driven directly off the rear end of the camshaft in a small extension chamber, and some form of revolution indicator was apparently mounted in the centre of the "V" radiator. Unfortunately the instrument is missing, but a portion of the driving mechanism is shown in the general arrangement drawing, from which it will be seen that the gear employs a small diameter worm mounted about half-way up the vertical driving shaft. This engages with a worm pinion which drives a trip-gear pinion at a speed ratio of approximately 1 : 100.

Wireless Generator

A flange is machined on the rear extension of the crankshaft to take a belt driving pulley for the wireless dynamo. This pulley is probably of the standard friction clutch type used on all enemy engines.

Exhaust

No exhaust manifold or silencer is provided, but a separate short exhaust pipe about 12 ins. long, of streamline section, extends from each cylinder. These are shown in the photograph of the engine, Fig. 2.

Conclusions

The design of this new type Austro-Daimler engine, as set out in the foregoing detailed description, and the following data and test results, shows a careful study of details.

Both in its general lay-out and in most of its details of construction this engine undoubtedly possesses more originality in design than the majority of enemy engines up to the present time.

The design of the lubrication and oil-cooling system has evidently been carefully considered, as have also the carburettor and induction systems.

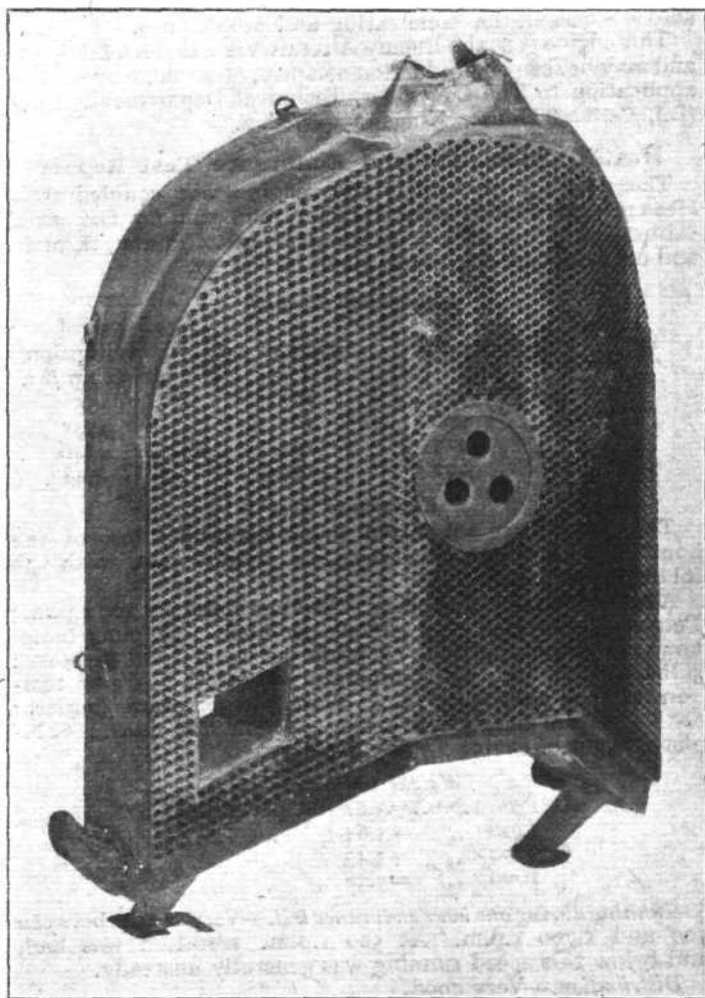


Fig. 25.—Radiator.

The new type of scroll cam oil pump is interesting, but in its present form is excessively heavy. This type of oil pump, however, it is interesting to note, is now used on the new 270 h.p. Bassé-Selve engines. In these engines the oil pump works on exactly the same principle, but is duplex and is relatively much lighter, the body of the pump being made of cast aluminium instead of cast iron.

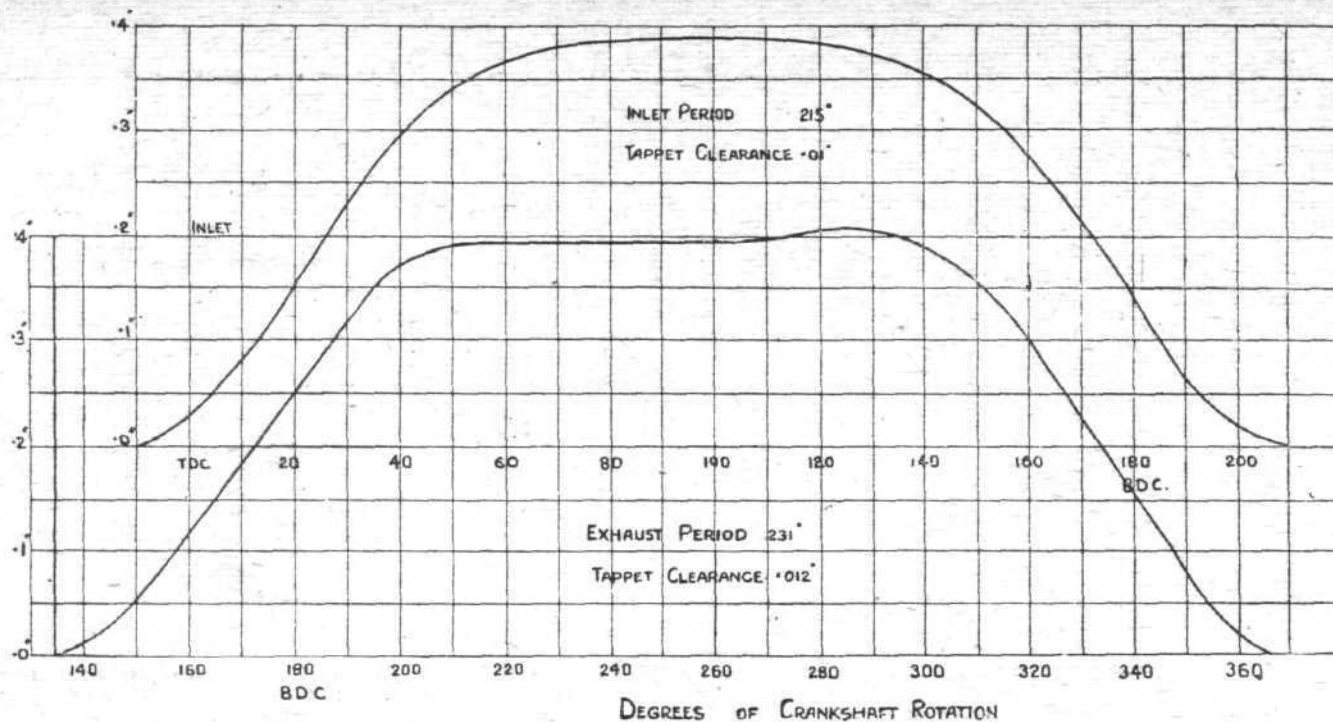


Fig. 26.—Valve lift diagram.

The 200 h.p. Austro-Daimler engine would be very suitable for installation in any of the small enemy scout machines which use the 180 h.p. Mercedes engines, but, speaking generally, the new Austro-Daimler engines need hardly be considered as a serious effort to compete with any of the Allied aero engines of the same rating and proportions.

This engine is at the Enemy Aircraft View Rooms, Islington, and may be seen on production of a pass, obtainable by written application to The Controller, Technical Department, Ap.D. (L.), Central House, Kingsway, W.C. 2.

R.A.E. Calibration and Endurance Test Report

The 200 h.p. Austro-Daimler engine was coupled to a Heenan and Froude dynamometer, and run for the usual calibration and one hour endurance tests. Power, throttle, and consumption curves are given in Fig. 27.

Calibration Results

r.p.m.	b.h.p.	Brake m.e.p.	Petrol consumption pts./b.h.p./hr.
1300	186	123.5	.55
1400	200	123.3	.545
1500	212	122	.546
1600	222	119.7	.548

Endurance Test

The engine was submitted to an endurance test of one hour's duration at normal revs., i.e., 1,400 r.p.m., with the following results:—

Average output: 202 b.h.p.; Average speed: 1,400 r.p.m.; Petrol consumption: 14 gallons per hour, .555 pints b.h.p. hour; Oil consumption: 7 pints per hour; Oil pressure: 5 lbs. per sq. in.; Oil temperature: 50° C.; Water temperature: (inlet) 54.5° C.; Water temperature (outlet): 60° C.; Total duration of tests: 10 hours 25 mins.; Complete weight of engine: 728.5 lbs. dry.

Weight per b.h.p.

At 1300 r.p.m.	= 3.81 lbs. per b.h.p.
1400 "	= 3.64 " " "
1500 "	= 3.43 " " "
1600 "	= 3.28 " " "

Running during one hour endurance test.—Very steady between 700 and 1,700 r.p.m. At 500 r.p.m. vibration was bad, and below this speed running was generally unsteady.

Distribution.—Very good.

Cleanliness.—Throughout the test the engine kept remarkably clean. No trace of oil or water leakage was observed.

Troubles Experienced on Test.—The K.L.G. spark plugs fitted for the test gave trouble by shorting internally. The valve tappets required to be re-adjusted during the test.

Test of Water Pump

Speed of the water pump spindle = 1.894: 1 crankshaft revolution.

The delivery of the water pump under varying pressures

has been made the subject of a separate test, the results of which are given in the following test report and delivery curves, Fig. 28.

The pump was coupled to an electric motor and run with the following results:—

r.p.m.	Pressure 2 lbs. sq. in.	Delivery galls. per min.
1800	2	42
1800	4	43
1800	6	28.5

The weight of the complete water pump = 7.6 lbs.

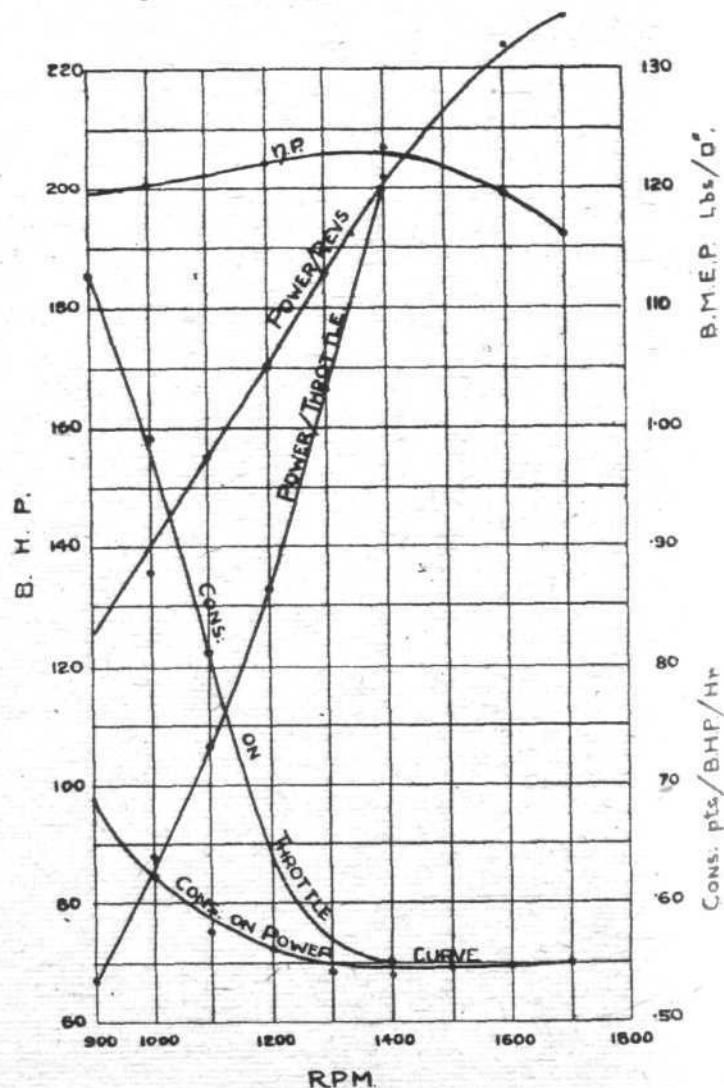


Fig. 27.—Power, throttle and consumption curves.

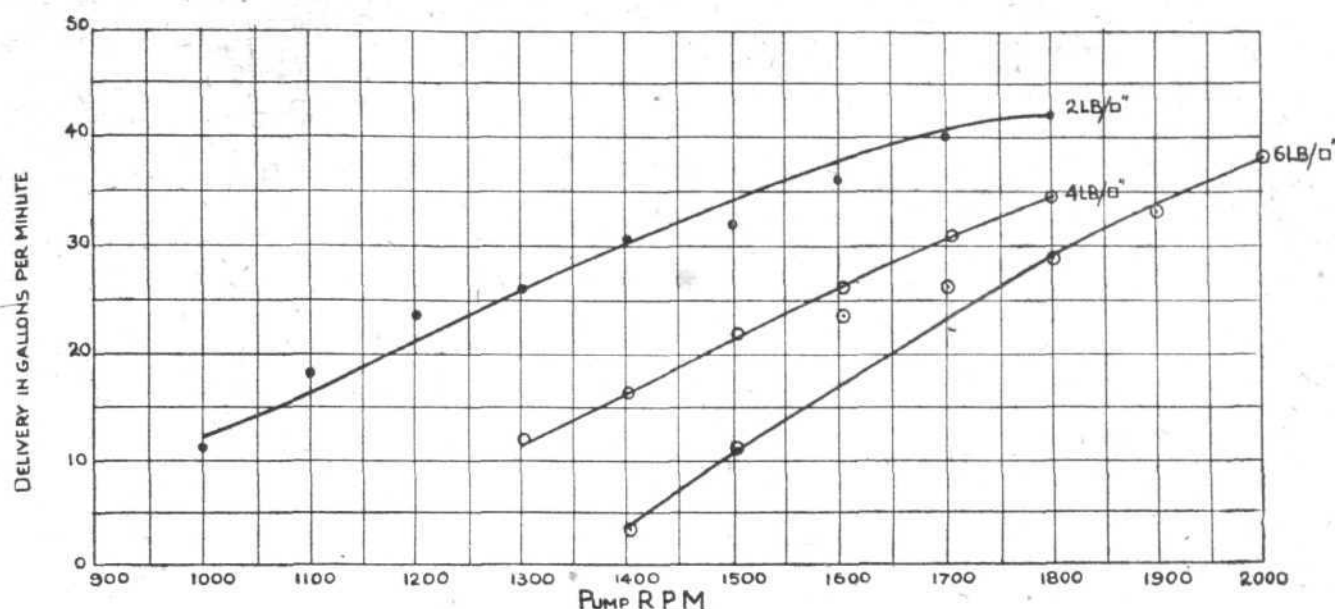


Fig. 28.—Water pump delivery curves.

R.A.E. Metallurgical Test Report

The chemical compositions and the relative material strengths of the principal parts of the engine are given in the following chemical analysis and mechanical test reports:—

Carburettors

Number and type of carburettors: one dual Austro-Daimler; Diameter of choke tube: 24.0 mm. (0.945 in.); Bore of main jets: 35.0 c.c. through per min.; Bore of

(1) Chemical Analysis

	C.	Si.	Mn.	S.	P.	Cr.	Ni.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Crankshaft	14	27	43	030	006	1.34	3.45
Cylinder	47	19	67	037	046	Nil.	Nil.
Connecting rod ..	40	16	73	043	023	36	1.50
Camshaft (case-hardened) ..	—	21	43	035	012	57	3.15
Inlet valve	46	24	42	023	022	47	2.28
Exhaust valve ..	44	24	41	025	022	47	2.36
Valve rocker	46	09	63	051	028	42	1.57
Gudgeon pin (case-hardened) ..	—	12	49	028	011	1.15	3.70

(2) Chemical Analysis

		Crankcase	Piston
		Per cent.	Per cent.
Copper .. ..	..	2.79	7.67
Zinc .. ..	..	6.61	1.33
Tin .. ..	..	Nil.	2.21
Silicon .. ..	..	0.76	0.52
Iron .. ..	..	2.06	1.32
Manganese .. ..	..	0.02	Trace
Nickel .. ..	..	—	Nil.
Magnesium .. ..	..	—	0.29
Aluminium (by difference) ..	..	80.76	86.66

(3) Bearings

	Journal Bearings	Big-end Bearings	Camshaft Bearings	Valve Rocker Bearings
	Per cent.	Per cent.	Per cent.	Per cent.
Copper	6.70	5.10	87.51	96.29
Zinc	—	—	0.28	Trace
Tin	81.13	81.42	11.34	2.52
Lead	0.71	1.64	0.17	0.28
Antimony	12.00	12.00	—	—
Manganese	—	—	Nil	0.21
Nickel	—	—	0.35	0.07
Iron	—	—	0.17	0.13
Phosphorus	—	—	0.05	—

(4) Mechanical Tests

	Position.	Mark.	No.	Area sq.in.	Y.S. T/sq.in.	M.S. T/sq.in.	Elong. cent.	Red. of area. Per cent.	Im- pact. ft. lbs.
Journal	A.	1	002	66.7	75.1	13.33	57.4	—	—
Journal	B.	2	—	—	—	—	—	—	30.5
Pin	C.	3	005	62.7	72.5	15.55	59.8	—	—
Pin	D.	4	—	—	—	—	—	—	33.5
Web longitude ..	E.	5	005	71.6	75.8	10.0	35.0	—	—
Web longitude ..	F.	6	—	—	—	—	—	—	7.5
Web transverse ..	G.	7	005	72.9	74.5	7.78	25.1	—	—
Web transverse ..	H.	8	—	—	—	—	—	—	—

General Data

Make of engine and rated h.p.: Austro-Daimler 200 h.p.; No. of cylinders: Six; Type number: 8597; Bore: 135.0 mm. (5.31 in.); Stroke: 175.0 mm. (6.89 in.); Stroke/bore ratio: 1.29:1; Area of one piston: 143.1 sq. cm. (22.2 sq. in.); Total piston area: 858.6 sq. cm. (133.1 sq. in.); Swept volume of one cylinder: 2,504.9 cu. cm. (152.8 cu. in.); Total swept volume of engine: 15,029.7 cu. cm. (916.8 cu. in.); Clearance volume of one cylinder: 623.1 cu. cm. (38.0 cu. in.); Compression ratio: 5.02:1; Normal b.h.p.: 200 b.h.p. at 1,400 r.p.m.; Maximum b.h.p.: 222 b.h.p. at 1,600 r.p.m.; Normal b.m.e.p.: 123.3 lbs./sq. in. at 1,400 r.p.m.; Maximum b.m.e.p.: 123.5 lbs./sq. in. at 1,300 r.p.m.; Piston speed: 1,607 ft. per min.; Mechanical efficiency (calculated): 89.7 per cent.; I.m.p. (calculated): 137.5 lbs. sq. in.; Fuel consumption: 0.555 pint = 0.499 lb./b.h.p./h.; Brake thermal efficiency: 27.4 per cent.; Indicated thermal efficiency: 30.6 per cent.; Air standard efficiency: 47.5 per cent.; Relative efficiency: 64.4 per cent.; Cub. in. of swept volume per b.h.p.: 4.58; Sq. in. of piston area per b.h.p.: 0.665; H.p. per cub. ft. of stroke volume: 377.3; H.p. per sq. ft. of piston area: 216.6; Direction of rotation of crankshaft and of propeller: anti clockwise; Type of gear reduction to propeller: none; Ratio crankshaft speed/propeller speed: 1:1; Type of valve gear: overhead camshaft; Type of starting gear: compression release.

pilot jets: 5.8 c.c. through per min.; Fuel consumption per hour: 111.0 pints = 100.0 lbs. Fuel consumption per b.h.p. hour: 0.555 pint = 0.499 lb.

Gas Velocities, Valve Area, &c.

Diameters.—Induction pipe: 59.0 mm. (2.32 in.); Inlet and exhaust effective valve ports (each): 44.0 mm. (1.73 in.); Inlet and exhaust cylinder ports (each): 42.0 mm. (1.65 in.); Cross Sectional Areas.—Induction pipe: 27.33 sq. cm. (4.22 sq. in.); Inlet valve (πdh) and exhaust valve (πdh): 13.69 sq. cm. (2.12 sq. in.) and 14.05 sq. cm. (2.18 sq. in.); Exhaust branch pipes: 38.25 sq. cm. (5.92 sq. in.).

Mean Gas Velocities (1,400 r.p.m.)

Induction pipe: 141.0 ft. per sec.; Inlet valves: 140.0 ft. per sec.; Exhaust valves: 136.0 ft. per sec.; Exhaust branch pipe: 100.5 ft. per sec.

Inlet Valves

Number per cylinder: two; Largest diameter: 48.0 mm. (1.89 in.); Effective valve port dia.: 44.0 mm. (1.73 in.); Width of seating: 2.5 mm. (0.09 in.); Angle of seating: 45°; Lift of valve: 9.9 mm. (0.39 in.); Diameter of stem: 10.0 mm. (0.39 in.); Length of valve guide: 68.0 mm. (2.67 in.); Overall length of valve: 135.0 mm. (5.31 in.); Number of springs per valve: one; Free length of spring: 60.0 mm. (2.36 in.); Length in position (no lift): 46.0 mm. (1.81 in.); Mean diameter of coils: 34.0 mm. (1.34 in.);

Diameter of wire: 4.0 mm. (0.157 in.); Ratio length of spring/lift of valve: 4.61:1; Weight of valve complete with spring: 0.50 lb.; Weight of spring bare: 0.16 lb.; Inlet valve opens 10° early, closes 30° late; Period of induction: 220°; Inlet valve tappet clearance: 0.25 mm. (0.01 in.).

Exhaust Valves

Number per cylinder: two; Largest diameter: 48.0 mm. (1.89 in.); Effective valve port diameter: 44.0 mm. (1.73 in.); Width of seating: 2.5 mm. (0.09 in.); Angle of seating: 45°; Lift of valve: 10.16 mm. (0.40 in.); Diameter of stem: 10.0 mm. (0.39 in.); Length of valve guide: 68.0 mm. (2.67 in.); Overall length of valve: 135.0 mm. (5.315 in.); Number of springs per valve: one; Free length of spring: 60.0 mm. (2.36 in.); Length in position (no lift): 46.00 mm. (1.81 in.); Mean diameter of coils: 34.0 mm. (1.34 in.); Diameter of wire: 4.0 mm. (0.157 in.); Ratio length of spring/lift of valve: 4.6:1; Weight of valve complete with spring: 0.50 lb.; Weight of spring bare: 0.16 lb.; Exhaust valve opens 45° early, closes 7° late; Period of exhaust: 232°; Exhaust valve tappet clearance: 0.304 mm. (0.012 in.).

Inertia Forces, Bearing Loads, &c.

Weight of piston complete with rings and gudgeon pin: 4.18 lbs.; Weight per sq. in. of piston area: 0.188 lb.; Weight of connecting-rod complete: 4.84 lbs.; Weight of reciprocating part of connecting-rod: 1.66 lb.; Total reciprocating weight per cyl.: 5.84 lbs.; Weight per sq. in. of piston area: 0.263 lb.; Length of con. rod (centres): 315.0 mm. (12.40 in.); Ratio con. rod/crank throw: 3.6:1; Inertia lbs./sq. in. piston area top centre: 63.8 lbs./sq. in.; Inertia lbs./sq. in. piston area bottom centre: 36.2 lbs./sq. in.; Inertia lbs./sq. in. piston area mean: 25.0 lbs./sq. in.; Weight of rotating mass of con. rod: 3.18 lbs.; Total centrifugal pressure: 610 lbs.; Centrifugal pressure lbs./sq. in. piston area: 27.5 lbs./sq. in.; Mean average fluid pressure including compression: 47.0 lbs./sq. in.; Mean average loading on crank pin bearing, total from all sources in terms of lbs./sq. in. piston area: 91.0 lbs./sq. in.; Diameter of crank pin: 56.0 mm. (2.20 in.); Rubbing velocity: 13.42 ft. per sec.; Effective projected area of big-end bearing: 32.4 sq. cm. (5.02 sq. in.); Ratio piston area/projected area of big-end bearing: 4.42:1; Mean average loading on big-end bearing: 402 lbs./sq. in.; Load factor on big-end bearing: 5,400 lbs./ft. sec.

Cylinders

Overall height of bare cylinder from top of base chamber: 365.0 mm. (14.370 in.); Depth of spigot at base of cylinder: 15.0 mm. (0.590 in.); Diameter of cylinder over water jacket: 160.0 mm. (6.29 in.); Thickness of flange at base of cylinder: 11.0 mm. (0.433 in.); Number of holding-down bolts per cylinder: eight; Diameter of holding-down studs: 4 of 14.0 mm., 4 of 19.0 mm.; Thickness of water jacket: 1.00 mm. (0.039 in.); Mean thickness of combustion chamber wall: 5.0 mm. (0.197 in.); Thickness of cylinder barrel (top): 4.0 mm. (0.177 in.); Thickness of cylinder barrel (centre): 3.0 mm. (0.138 in.); Thickness of cylinder barrel (bottom): 4.0 mm. (0.157 in.); Diameter of water connections: between cylinders: 36.0 mm. (1.42 in.).

Piston

Type of piston: aluminium, internal ribs; Diameter at top: 134.0 mm. (5.275 in.); Diameter at bottom: 134.58 mm. (5.297 in.); Length: 110.5 mm. (4.35 in.); Ratio piston length/cylinder bore: 0.82:1; Number of rings per cylinder: three; Position of rings: above gudgeon pin; Width of rings: 7.0 mm. (0.275 in.); Gap of rings in cylinder: 0.48 mm. (0.019 in.).

Connecting Rod

Length between centres: 315.0 mm. (12.40 in.); Ratio connecting rod/crank throw: 3.6:1; Little-end bearing type: plain phosphor-bronze; Little-end bearing diameter: 28.0 mm. (1.10 in.); Little-end bearing length: 67.0 mm. (2.64 in.); Little-end bearing projected area: 18.70 sq. cm. (2.90 sq. in.); Ratio piston area/projected area little-end bearing: 7.66:1; Big-end bearing type: bronze shell, lined white metal; Big-end bearing diameter: 56.0 mm. (2.20 in.); Big-end bearing length (actual): 67.0 mm. (2.63 in.); Big-end bearing length (effective): 58.0 mm. (2.28 in.); Big-end bearing projected area: 28.4 sq. cm. (5.02 sq. in.); Ratio piston area/projected area big-end bearing: 4.42:1; Number of big-end bolts: four; Full diameter of bolts: 10.0 mm. (0.39 in.); Total cross sectional area bottom of threads: 2.04 sq. cm. (0.316 sq. in.); Pitch of threads: 1.5 metric; Maximum load due to inertia at 1,400 r.p.m.: 1,390 lbs.; Maximum load due to inertia at 1,600 r.p.m.: 1,815 lbs.; Load due to centrifugal force at 1,400 r.p.m.: 370 lbs.; Load due to centrifugal force at

1,600 r.p.m.: 485 lbs.; Total load on bolts at 1,400 r.p.m.: 1,760 lbs.; Total load on bolts at 1,600 r.p.m.: 2,300 lbs.; Stress per sq. in. at 1,400 r.p.m.: 5,570 lbs./sq. in.; Stress per sq. in. at 1,600 r.p.m.: 7,280 lbs./sq. in.

Crankshaft

Number and type of main bearings: seven, bronze cage, lined white metal; Cylinder centres: 166.0 mm. (6.53 in.).

Crankpins.—Outside diameter: 56.0 mm. (2.20 in.); Inside diameter: 30.0 mm. (1.18 in.); Length: 68.0 mm. (2.67 in.).

Journals.—Outside diameter: 58.0 mm. (2.28 in.); Inside diameter (front two): 21.0 mm. (0.82 in.); Inside diameter (others): 30.0 mm. (1.18 in.); Length prop. end: 56.0 mm. (2.20 in.); Length, rear end: 43.5 mm. (1.71 in.); Length, centre: 50.0 mm. (1.97 in.); Length, intermediate: 50.0 mm. (1.97 in.).

Crank Webs.—Width: 74.0 mm. (2.91 in.); Thickness (front two): 24.5 mm. (0.96 in.); Thickness (others): 24.0 mm. (0.94 in.); Radius at ends of journals and crank pins: 4.5 mm. (0.17 in.); Weight of complete shaft: 96.5 lbs.

Working Clearances

Piston clearance top (total): 1.00 mm. (0.039 in.); Piston clearance bottom (total): 0.42 mm. (0.016 in.); Side clearance of con. rod in piston (total): 2.50 mm. (0.098 in.); Side clearance of con. rod on crank-pin (total): 1.00 mm. (0.039 in.); End clearance of crankshaft in main bearings: 2.00 mm. (0.079 in.).

Lubrication System

Number and type of oil pumps: one plunger; Oil consumption per hour: 7.0 pints; Oil consumption per b.h.p. hour: 0.035 pint—0.039 lb.; Oil temperature: 50 deg. C.; Oil pressure: 5 lbs. per sq. in.; Specific gravity of oil: 0.899; Ratio pump speed/crankshaft speed: 1:15.

Ignition

Number and type of magnetos: Two Bosch Z.H.6; Firing sequence of engine: prop. 1-5-3-6-2-4; Ignition timing (fully advanced): 20° E to 40° E, variable; Number of plugs per cylinder: two; Type of plugs: Bosch 3 point; Ratio magneto speed/crankshaft speed: 1.5:1.

Cooling System

Number and type of water pumps: one centrifugal; Diameter of inlet pipe: 36.0 mm. (1.42 in.); Diameter of outlet pipe: 36.0 mm. (1.42 in.); Diameter of rotor: 112.0 mm. (4.40 in.); Number and type of radiators: one honeycomb; Ratio water pump speed/engine speed: 1.894:1; Water temperature inlet: 54.5° C.; Water temperature outlet: 60.0° C.

Air Pump

Type of air pump: cam operated plunger; Bore: 38.0 mm. (1.496 in.).

Weights

Weight of complete engine, dry, with propeller boss and exhaust manifold: 728.5 lbs.; Weight per b.h.p. ditto: 3.64 lbs.; Weight of fuel per hour: 100.00 lbs.; Weight of oil per hour: 7.86 lbs.; Total weight of fuel and oil per hour: 107.86 lbs.; Gross weight of engine in running order, less fuel and oil (cooling system at .65 lb. per b.h.p.): 858.50 lbs.; Weight per b.h.p. ditto: 4.29 lbs.; Gross weight of engine in running order, with fuel and oil for six hours' running (tankage at 10 per cent. weight of fuel and oil): 1,570.4 lbs.; Weight per b.h.p.: 7.85 lbs.

Overall Dimensions

Height: 1,150 mm.; Length: 1,724 mm.; Width: 568 mm..

General analysis of weights

Description of part.	No. per set.	Average unit weight in lbs.	Weight of complete set in lbs.	Percentage of total weight.
Cylinders, bare	6	18.43	110.62	15.30
Detachable inlet valve pockets ..	6	1.06	6.37	0.87
Pistons, complete with rings ..	6	3.52	21.12	2.90
Gudgeon pins	6	0.66	4.00	0.54
Connecting rods	6	4.84	29.04	3.98
Crankshaft	1	96.50	96.50	13.24
Inlet valves	12	0.34	4.12	0.56
Exhaust valves	12	0.34	4.12	0.56
Inlet exhaust valve springs ..	24	0.16	3.88	0.53
Valve collars and locking cones ..	24	0.09	2.19	0.30
Valve rockers (with bearings) ..	12	1.25	15.00	2.06
Camshaft	1	10.25	10.25	1.40
Camshaft casing complete ..	1	34.50	34.50	4.74
Half compression gear ..	1	2.69	2.69	0.36

Vertical camshaft driving spindle

(complete)	1	6.81	6.81	0.93
Vertical spindle housing ..	1	1.62	1.62	0.22
Camshaft bevel sprocket ..	1	3.15	3.15	0.43
Crankcase, top half ..	1	107.00	107.00	14.68
Crankcase, bottom half ..	1	73.50	73.50	10.09
Bearing caps	7	2.27	15.93	2.19
Main holding-down bolts ..	14	0.75	10.50	1.44
Thrust race, complete ..	1	5.28	5.28	0.72
Propeller hub	1	11.31	11.31	1.55
Carburettors	1	24.06	24.06	3.30
Induction pipes	2	4.25	8.50	1.16
Exhaust pipes	6	2.33	14.00	1.92

Oil pump	1	11.81	11.81	1.62
Oil leads with relief valve ..	1	4.56	4.56	0.62
Magnetos	2	14.37	28.75	3.94
High tension leads with casing	1	4.75	4.75	0.65
Magneto and throttle controls	1	2.12	2.12	0.29
Water pump	1	7.62	7.62	1.04
Water pipes	1	6.56	6.56	0.90
Air pump	1	1.62	1.62	0.22
Rev. counter drive	1	0.75	0.75	0.10
Gun gear with case	1	5.81	5.81	0.80
Miscellaneous parts	1	28.09	28.09	3.85
Total			728.50	100.00

Aberdeen University and Lord Cowdray

LORD COWDRAY was on Saturday unanimously elected Rector of Aberdeen University in succession to Mr. Churchill, who had occupied the position for the last four years. Marshal Foch had also been nominated, but as it was considered very improbable that he would allow his name to be put forward at present, his nomination was withdrawn.

French Aero Club Honours Famous Flyers

At a banquet on November 7th celebrating the 20th anniversary of the founding of the Aero Club of France, the Club's gold medal was awarded to the following:—Lieut. Col. Bishop, Lieut. Coiffard (killed), Lieut. Willy Coppens, Capt. Mezergues, Lieut. Roger Delaitre, Lieut. Garaud, Under-Lieut. Forest, and Adjudant Leon Vitalis. Among those present at the banquet were Lieuts. Fonck and Nungesser.

Interned in Switzerland

THE following officer, who was a prisoner in Germany, has arrived in Switzerland for internment:—

Lieut. W. H. Green, King's (Liverpool Regt.), att'd. R.F.C.

German Aeroplane in Holland

ACCORDING to the *Telegraaf* a German aeroplane descended on November 4th near Gempel in Holland, and both occupants were interned.

Revolt at German Air Station

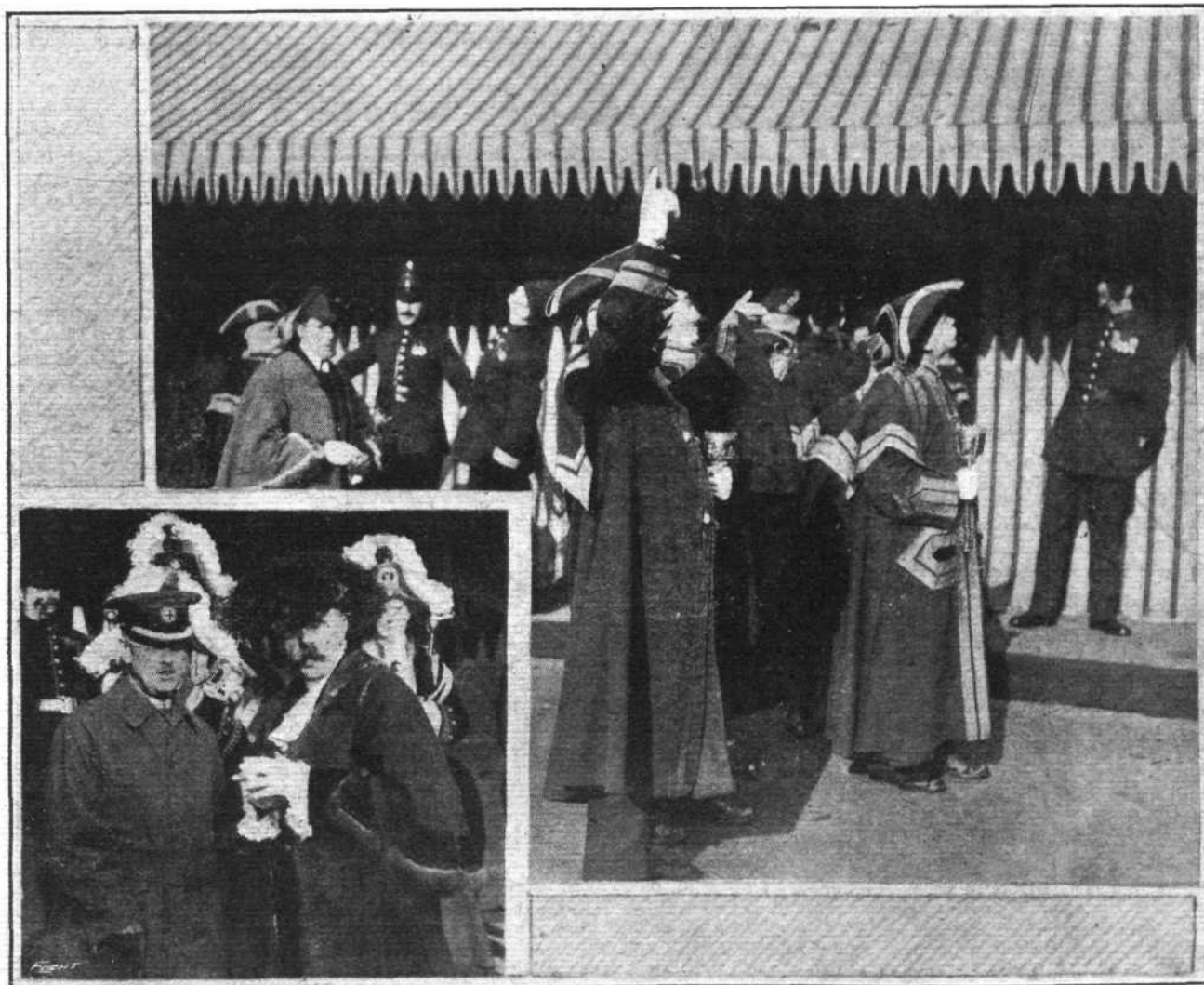
It was reported from Copenhagen on November 7th that the German aeroplane station in Aabenraa (Apenrade), Northern Schleswig, had been occupied by soldiers and the airmen arrested.

An Austrian Aeroplane Works Destroyed.

At the end of last week it was reported that the aeroplane works at Wiener Neustadt, the largest in Austria, had been destroyed by the Czecho-Slovak troops.

Air Fighting in October

COLLATING the figures given in the various official *communiqués* it appears that 1,075 were reported down on all the fighting fronts during the month of October, as compared with 1,142 in the previous month. In addition 104 observation balloons were destroyed against 171 in September. The British reported 396 Germans destroyed or captured and 128 driven down out of control with 209 British missing; the Americans destroyed 94 Germans with 18 of their own machines missing; the French destroyed 218 Germans, and the Belgians one. On the Italian front the British destroyed 24 enemy machines, and seven were driven down out of control, while 13 British were missing; the Italians brought down 16. During the month the Germans claim to have shot down 191 Allied machines.



AT THE LORD MAYOR'S VICTORY SHOW.—Watching the aircraft over the Guildhall. Inset, the new Lord Mayor, Sir Horace Marshall.

CORRESPONDENCE.

The Relative Inflammability of Dopes

[1968] In certain newspaper reports on the findings of the sub-committee appointed to investigate the contract of the British Cellulose Company, reference is made to the Air Board sending out an inflammable substitute for cellulose acetate dope owing to the shortage of the latter. This statement cannot in fairness be made by anybody with a knowledge of the facts, for to my knowledge at least the majority of the dope sent out, apart from cellulose acetate dope, was at least as little inflammable as the cellulose acetate variety and it undoubtedly afforded a better resistance to ignition of the wings by "tracer" bullets and other incendiary methods of firing aircraft by means of the fabric.

The question of the relative danger from inflammability of dopes has never, to my mind, been properly dealt with. In the Specification known as D. 101 of April, 1918, drawn up by the British Engineering Standard Association, a "method of testing the inflammability" and a "method of measuring the rate of burning" is laid down. The test of the former is to place a small cube, 4 mm., of celluloid on top of the fabric and to ignite the cube. It is stated that "the celluloid cube shall not produce more than a slight charring and the fabric itself shall not ignite." The man in the street would naturally ask why a cube of this specified size should be taken and why the size should not be increased until the fabric does ignite.

As regards the method laid down under the above specification for measuring the rate of burning, which is to ignite the edges of a hole in the fabric and to measure the time taken for the flame to travel, one cannot take exception to this except that it might be suggested that if the stringency of the test for inflammability were increased, the dope that offers the better resistance to ignition should have the preference over one that burns at a slower rate, for when the fabric of an aeroplane wing is once aflame, it if does not blow out, the aviator has a very small opportunity of getting to earth in safety.

My object in writing to you is to suggest a more efficient method of testing the danger from inflammability. To arrive at the correct relative values of dope in this connection, the following tests should be made:—

- (1) Facility with which flame is put out by the wind, assuming the fabric to have ignited.
- (2) Resistance the dope offers to ignition.
- (3) Rate of burning if and when the fabric is ignited.

I have placed the qualities roughly in their order of importance. If a dope offers a greater resistance to flame, it may, as a general rule, be said that it is better than a dope that offers a less resistance to flame even though the latter burns slower, for the reason that when the fabric is once ignited the short time it takes the wings to burn gives the pilot insufficient time to reach the earth. Secondly, if the burning is of such a nature that it is easily extinguished by the wind, it will, in turn, be seen that such a dope, even assuming it to ignite more readily, is probably of greater value than one which is harder to ignite but does not blow out by the wind so readily.

To my mind the great disadvantage of the cellulose acetate dopes in this connection is that they melt from the heat, and they are, in consequence, the most difficult to put out when once ignited, though, no doubt, something can be said in their favour in connection with the third quality, *i.e.*, rate of burning, as they perhaps burn a little slower than a type of nitro-dope made on the lines of "Titanine." The latter, however, offers a greater initial resistance to flame and also has the advantage of being readily extinguished by the wind.

Until the Air Board lay down a definite standard for tautness, all comparative dope tests have their value limited. Given a definite standard of tautness the fireproofing quality can, with certain types of dope, probably be increased without overstepping the limit.

In testing dopes for inflammability, they must obviously be applied on double-sided frames so as to produce, as nearly as possible, the conditions of an aeroplane wing. These frames, should if possible, be moved quickly through the air during the process of sending incendiary bullets through them and as much more efficient methods of incendiary attack will, no doubt, be found should the War be prolonged, one should not necessarily limit this to the incendiary bullets at present in use, but should increase the stringency of the test so far as to ensure the ignition of the fabric. This would definitely decide which dope offers the greatest resistance to flame, and would show whether the wind caused by the current of air would extinguish it.

Personally, I have always been of the opinion that it is not generally realised what a vulnerable target the fabric of an aeroplane wing affords. It is a common thing to read of machines that have had upwards of 30 or 40 bullets through the wings returning to their base without discomfort. Should any one of these cause the fabric to ignite, however, the machine would be doomed. I am sure I have no wish to see the "Hunlike" methods of fighting by liquid flame, &c., &c., increased, but if we wish to retain our supremacy of the air we must be prepared for all eventualities, and by realising exactly what might be done against us, we should best be able to take the most effective precautions and counter-measures. To my mind there is no reason why our aeroplanes should not be sent out capable of resisting much more effective media for conveying flame through igniting the fabric than the present tracer bullets. One might readily predict that if the necessity for this does not arise in the present War, it is bound to in the next (God forbid!).

I have limited my remarks to the possibility of setting machines on fire through the medium of the doped fabric. Ignition of the petrol through a tracer bullet penetrating the tank is quite another matter, and one that I must leave to others to deal with. The petrol tank, however, does not occupy more than 1 per cent. of the area of the machine, whereas fabric occupies more than 90 per cent. of it.

T. W. H. WARD,
Managing Director, Titanine, Ltd.

Aeroplanes after the War

[1969] With the prospect of an early Peace, bringing, as it must do, the post-War manufacture of aeroplanes, we think your Journal could be of invaluable service in assisting manufacturers generally to get down to serious business.

For the past four years, the industry has been producing machines for War purposes. Under the guidance of the Air Ministry, manufacturers to a large extent have produced, without reference to one another, planes, engines and accessories to requirements laid down by this authority, but we feel that for commercial purposes, as soon as this control is removed, unless some definite standards are set up, we shall get such a multiplicity of ideas in each of the three branches mentioned, that considerable time will elapse before any recognised standards are reached. Bearing this in mind, we, as being interested in the manufacture of engines, asked the leading plane builders for their opinions of their likely requirements of post-War engines. Without exception, our efforts were met with all possible courtesy and interest, but we were surprised to find that such a great diversity of opinion existed as to use, size, power and type of machine that would be used.

We respectfully suggest that your Journal should invite a controversy on the subject, to be followed by a summary, to find out what are the broad lines that would ultimately be followed, and establish, if possible, some such standards as:—

1. Types of aeroplanes.
2. Horse-power of engines.
3. Engine fixture dimensions.
4. Propeller speeds.
5. Ranges of Propeller bosses.
6. Fittings.
7. Instrument boards.

We do not suggest that this list is in any way complete, but includes just a few items that occur to us. By this means, the manufacturer of aeroplanes knows that he has available a selection of engines and accessories which can be embodied without alteration to the design of his machine, and an engine builder knows that his engines will fit into a number of makes of planes, and so on.

We instance the motor car industry. For years, the manufacturers of chassis designed absolutely regardless of the body builder, and when the body had been fitted, the unfortunate purchaser used to hunt for various places on his car to fit accessories.

We feel that we may be criticised on the ground that the suggestion is one that might hinder progress and perfection, but we suggest that the great aim of all manufacturers, during the trying period of reconstruction, will be to get down to a Peace basis as quickly as possible, thereby minimising disorganisation of labour and consequent unemployment. After this has been attained, future development could be considered.

p.p. THE SELSDON AERO AND ENGINEERING CO., LTD.,
G. CAMPLING, Managing Director.
Sanderstead Road, Croydon, Surrey, November 8th.

AIRISMS

FROM THE FOUR WINDS

WONDER what the "All-Liest" and his scorpion brood now think of "Der Tag"?

And of the "whacked" (Anglicised) not on the Rhine, but 10 to 30 kilometres the other side!

And the "wacht" (Germanised) being attended to by the Allies!

BUT why not an Allied occupation of Essen also? Probably some politician's over-sensitive sentiment for Hun feelings has intervened. Yet there can hardly be any claim by this pernicious hive of destructiveness itself to suggest a Delicatessen.

Punch Almanack 1919 is, as its hundred or more forebears, full of topical hits, some of them quite exceptionally to the point. A double-page "Khaki" cartoon, "If Parliament were called up," is tellingly suggestive of Parliamentary hot-air tactics, whilst the lighter side of aviation, needless to say, has its show. For once—*Punch* does not often make a miss in its cartoons—the final page picture is a little doubtful in relation to facts. "Handing on the Torch, the last Stage," shows much mauled 1918 passing up the torch of Victory to newly born 1919 to carry on. If formal Peace be not actually with the world at least Victory is at last with civilisation.

At least the late All Highest has, in one direction, redeemed his character as a prophet. He said that peace would come by the time the leaves had fallen. And it has, but he would have stood a better chance of earning his living in retirement by starting a rival Old Moore's Almanac had he in 1914 named the year of that leaf-falling.

It's a bit late in the day for that Manchester offer of £1,000 for the first British pilot to drop a bomb on Berlin.

MANY are the stories told of the Gotha bombing crews and their pretty little ways when on orgies bent. Percival Phillips last week referred to the matter in the *Daily Express*,

incidentally throwing some light upon Richthofen and his satellites. Mr. Phillips, judging by details floating around in other quarters, is very gentle in his indictment, but it is sufficient to indicate that much is concealed by what is not revealed. Mr. Phillips' little contribution sets forth that the German airmen who bombed London and French towns in the British area lived sumptuously in their Belgian aerodromes. Our advance has revealed the elaborate character of these establishments, which were built and equipped at great cost and fitted with all kinds of protective devices. Some aerodromes, notably those near Courtrai, housed as many as eighty machines. The hutments were of brick, with stairways leading to underground galleries and chambers embedded in concrete, with electric light, bathrooms, and kitchens. The hangars had concrete floors and massive steel and timber superstructures.

NEARLY all these aerodromes from which the Gothas made their journeys across Channel and as far south as Rouen and Havre fell into the hands of the Allies intact. In a few instances where dykes and ditches had been boarded over to increase the size of landing fields the civilian population had been invited to remove the timber for firewood, but the hutments, dug-outs and workshops—stripped of their equipment—remain to-day just as the German Flying Corps left them.

The airmen lived recklessly, convinced that in a few days they would be dead. "I have heard," says Mr. Phillips, "many stories of their carousals in Lille, where von Richthofen lived in a palatial mansion and held a kind of court, surrounded by the members of his 'circus.' A number of the best houses were requisitioned for the groups of aviators stationed around Lille. They came frequently into the city for an all-night debauch, spending their time drinking and singing songs round the piano until nearly dawn, when they would hurry back to the aerodrome near Haubourdin and other suburban towns and prepare for the morning's flight over the British lines. They told wonderful stories of the destruction of Abbeville, Boulogne and other French towns when they returned from their bombing expeditions."

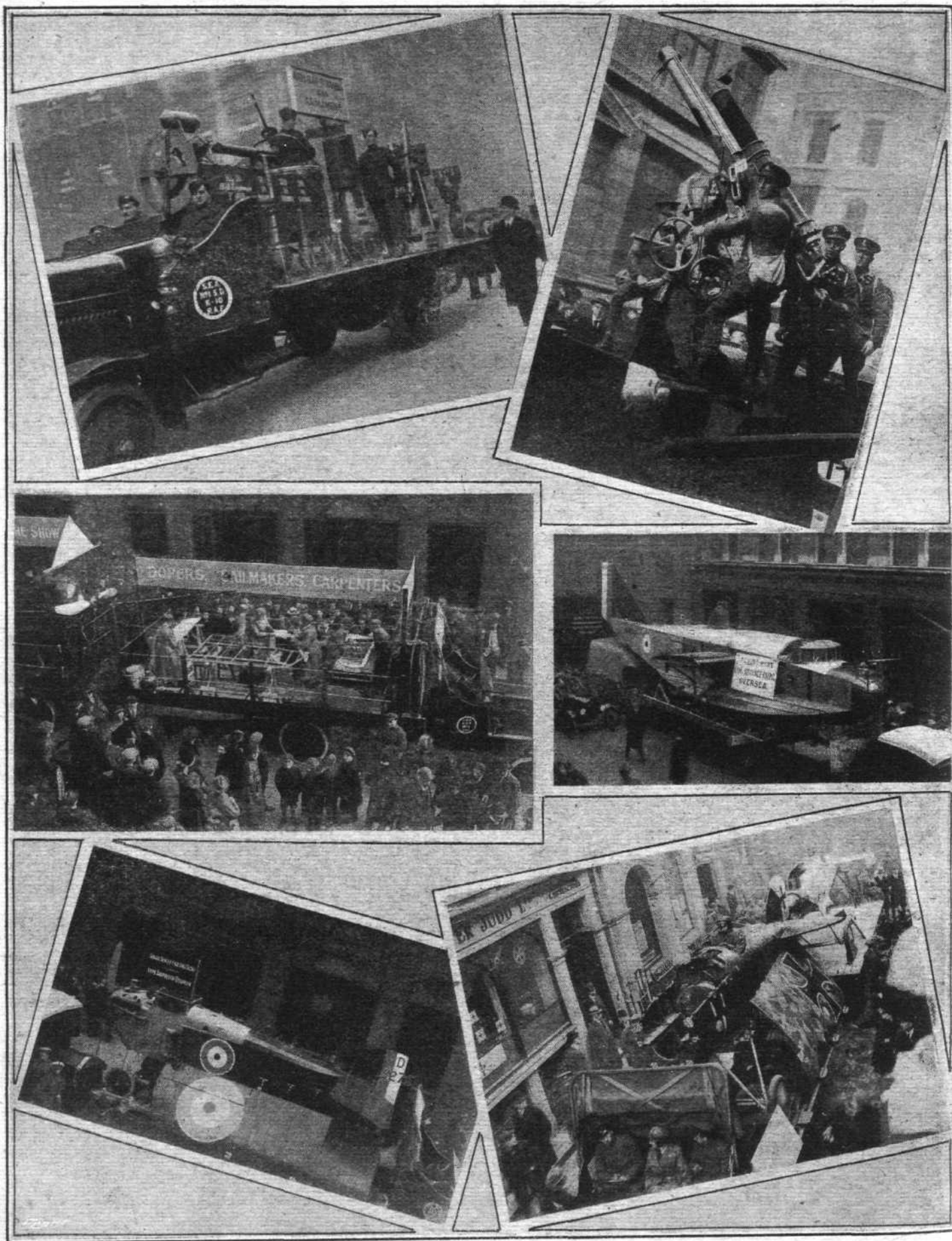


W.R.A.F.s, at attention and at ease, in the Lord Mayor's Victory Show.

"Flight" Copyright.

In another letter Mr. Percival Phillips records quite a unique incident, one which helps to make aviation history. He relates how, after the surrounding of Le Quesnoy, a British

aeroplane flew low over the town and dropped a message demanding surrender. But the answer was only another outbreak of machine-gun fire, and the garrison therefore had



AIRCRAFT IN THE LORD MAYOR'S VICTORY SHOW.—Top to bottom, left to right; Anti-aircraft gun lorry, A.A. gun at attention; dopers and sailmakers' lorry; Overseas flying boat; a Sopwith "Dolphin"; Hun relics, an Albatros and a Pfalz.

"Flight" Copyright.

to suffer the inevitable and lose its quantum of effectives, leaving ultimately a matter of a thousand prisoners to be roped into the cages.

FROM a further communication, it would appear Mr. Mark H. Judge, as Chairman of the Committee on War Damage, has no fear of Dora and her wily ways. The sought-for information for damage done through air-raids and bombardment is on behalf of the Board of Trade.

It is reported that to facilitate Transatlantic mail and passenger traffic deep-water piers at Queenstown and at a port in the north of Ireland are proposed by a sub-committee of the Select Committee on Transport. From these ports improved fast train services for passengers might, it is pointed out, be established and air services for express mails might be found feasible.

It's *something* to remember from recent answers in Parliament, that officialdom has the subject of aerial postal services in mind. Why not let some enterprising private firm take up a contract as a lead to Government timidity. The only proviso that would be reasonable in that case would be that once it had been proved a commercial success the Government should not have the power of filching the goodwill of the concern too easily.

THAT formidable and respected technician, Mr. M. A. S. Riach, has reduced the matter of the Atlantic flight to a formula in an article entitled "A Matter of Mathematical Analysis," which appears under his name in the Engineering Supplement of *The Times*. Not only does he work on the *lucus a non lucendo* principle, but he is devilish cautious. He says that "in all probability the problem will be eventually solved, for (and mark this well) undoubtedly it will

be solved sooner or later." The italics are ours: *Quod erat demonstrandum*—as dear old Euclid used to say. Mr. Riach's swift and analytical mind, after sundry divagations, reaches the conclusion that—"The weight of the crew remains constant during the flight." We hate to differ with an authority, but it seems to us that they will each be approximately twelve pounds heavier at the conclusion, unless they be rivals of Sacco, the Starving Man. Against this must be set the loss of weight in their clothes by erosion, or friction with the surrounding elements. Say two dwts. "Since the aeroplane is losing weight in fuel during its flight," continues Mr. Riach, "its velocity will not in general remain constant for the trip, so that the total distance flown will not simply be the product of the velocity and the time, but must be expressed as the time integral of the velocity between the limits zero and . . ." We give him best! It is comforting though to reflect that the informed Mr. Riach has an Achilles heel. He, in common with the writer, was once the possessor of those marvellous Sabella cycle-cars, of a design recalling the torture chair from the Spanish Inquisition (now in Horniman's Museum), and she proved too much for him, as she did for me. Even authorities are human!

SAYS the *Sheffield Independent* reassuringly, "No woman would wish for the death of a man to get his job," and goes on to administer further comfort by arguing that, if they do not marry us in the future, they will turn to aviation as an outlet for repressed feeling. H'm . . . (thoughtful pause). If motor driving provides any clue, there are only two kinds of women, those who drive as though they were conducting a hearse (and paid by the hour at that), sounding the horn continuously after the manner of Gabriel; and the others, who take all cross roads at forty an hour, turning one's thoughts to higher things. We must avow the woman aviator makes us a little dubious.

THE LORD MAYOR'S BANQUET.

LORD WEIR, who responded to the toast of "The Imperial Forces of the Crown" at the Lord Mayor's banquet on Saturday, said:—

"To-night for the first time in the history of your great banquet, the Air Service of the Crown is joined with the Navy and Army in receiving tribute of honour which the citizens of London pay to the Imperial Forces; and it is a very great privilege for me, and a great responsibility, to be the first Minister of the Service to whose lot it has fallen to return thanks to you on behalf of that Force. Allow me, then, in the name of the officers and men of the Royal Air Force, to express my sincere and whole-hearted appreciation of the warm and generous tributes which have been so eloquently made. To-night I have to speak on behalf of units of the Royal Air Force serving with the Navy on many a coast, and on many a ship; of units serving with our great Army in all the many theatres of war; and of units serving also with that new Force which has become a factor in modern warfare—the Independent Air Force—and when I refer to that Force, let me simply say that the only competent critic of the Force has been the enemy. The officers and men of these units would, I am sure, desire me to say to-night that, whatever measure of service they may have rendered through the medium of the air—service of great value, of great variety in measure and in targets, stinted only by weather—that service has been inspired and intensified by the glorious example set to them by the two senior Services. In regard to the home units, the School of Training Squadrons—that gallant force of flying instructors, whose work, if not so spectacular, is none

the less creditable—these men have their reward in the success of their overseas comrades, whom they have trained and equipped.

"The Air Force is in every sense young—born but yesterday—manned, may I say, by boys whose qualities of courage, self-sacrifice and skill have earned the immeasurable admiration and gratitude of all. Their record is surely an unmistakable proof of the soundness on which our Empire is built, and it is full of hope for the future, associated, as it has been, with the technical skill, the ingenuity and the adaptability of the British designers and the British manufacturers. Our indebtedness to them is very great, for the knowledge and the resources placed ungrudgingly at our disposal without restriction and without thought of private interests. To-night I feel that we are all conscious of living through hours pregnant with historical possibilities. It is a great night. At any moment, we hope, we may have reached the end of these years of sacrifice and of struggle, and may look forward to an era, no less strenuous, perhaps, but one in which construction rather than destruction will be the subject of our united efforts. The future of aviation—the future, perhaps, of the Air Force—will come, I hope, from the needs of peaceful commerce rather than from the tragic necessities of war, and one of the duties of the Air Force will be to maintain and still further develop that degree of technical superiority which we have now achieved. As regards the other source of our success—the quality of our youth—that will never fail us. It is bred in the soul and fostered by the spirit and tradition of a free people."

Reconstruction.

THE Minister of Reconstruction has appointed an Engineering Trades (New Industries) Committee to compile a list of the articles suitable for manufacture by those with engineering trade experience or plant, which were either not made in the United Kingdom before the War but were imported, or were made in the United Kingdom in small or insufficient quantities and for which there is likely to be a considerable demand after the War, classified as to whether they are capable of being made by (1) women; (2) men and women; (3) skilled men; and setting out the industries to which such new manufactures would most suitably be attached; and to make recommendations:—(a) On the establishment and development of such industries by the transfer of labour, machines and otherwise; (b) as to how such a transfer could be made, and what organisation would be requisite for the purpose, with due regard to securing the co-operation of labour.

The members of the main Committee, together with the Sub-Committees which have been appointed to deal with particular industries, are as follows:—

The Hon. H. D. McLaren, M.P., C.B.E. (Chairman), Charles Bennon, Esq., Sir George Bullough, Bt., F. H. Crittall, Esq., R. Dumas, Esq., Sir John Griffith, M.Inst.C.E., W. B. Lang, Esq., Charles A. Lister, Esq., C.B.E., P. J. Pybus, Esq., C.B.E., G. H. Sankey, Esq., Sir Percy Stothert, K.B.E., John Taylor, Esq., William Taylor, Esq., William Thom, Esq., Sir W. Rowan Thomson, K.B.E., and H. C. B. Underdown, Esq.

The members of the Branch Committee for the Aircraft Industry are Mr. P. J. Pybus (Chairman); Mr. R. O. Cary, of Sopwith Aviation Co., Ltd.; Mr. N. G. Gwynne, of Gwynnes, Ltd.; Mr. J. D. Siddeley, of Siddeley-Deasy Motor Car Co., Ltd.; Mr. H. White-Smith, of British and Colonial Aeroplane Co.; Mr. G. Holt Thomas, of Aircraft Manufacturing Co., Ltd.; and Mr. C. V. Allen, of Society of British Aircraft Constructors, Ltd.

Personals

Casualties

Capt. ROBIN TUDOR BARLOW, R.A.F., previously reported missing and now killed in action or died of wounds on or about July 30th last, was educated at Southlea, Malvern, and Bradfield College, Berks. Being in New Zealand at the outbreak of the war, he volunteered for service, and was enrolled in the 13th (Canterbury) Infantry Battalion. He sailed for Egypt in October, 1914, with the first New Zealand Expeditionary Force, landed in Gallipoli on April 26th, 1915, and was severely wounded a fortnight later (May 8th) in an attack on the Turkish position at Sedd-el-Bahr. About a year later, having been discharged from the New Zealand Army as unfit for infantry service on account of his wound, he applied for and obtained a commission in the R.F.C., and, going to the front in France in September, 1916, served first as observer and afterwards as pilot during the whole period of the battle of the Somme. After being again wounded he was posted to the instructional staff at Winchester till recalled to the front on March 23rd last, serving as flight commander both in the retreat in March and April and in the early stage of the Allied forward movement in July, when he met his death.

Lieut. LEONARD STOPFORD BROOKE, R.A.F., who was reported missing on September 25th, and is now unofficially reported killed in action on that date, was the elder son of Mr. and Mrs. Leslie Brooke, 14 Marlborough Hill, N.W. His age was 23.

Lieut. ARTHUR FREDERIC EVANS, R.A.F. (late 2/5th R.W.F.), who was killed in action on October 30th or 31st, aged 32, was the younger son of Mrs. and the late Arthur F. Evans, of Fazakerley House, Prescott.

Lieut. EDGAR CECIL FINZI, R.A.F., who was previously reported missing, now reported killed in action while on patrol duty on September 5th, aged 19, was the third and elder surviving son of the late John A. Finzi, of London, and Mrs. John Finzi, of Birkholt, Harrogate.

Capt. KENNETH CARLYLE GILL, M.C., R.A.F., who recently died of wounds received in flying back from a hospital, was the sixth son of the Rev. A. T. and Mrs. Gill, of West Wittering Vicarage, Chichester. He first went out in February, 1915, as sec. lieut. in the 1st Cambridge Regt., having been at St. Catharine's College, Cambridge, two years, intending to take Holy Orders with a view to becoming a missionary under the auspices of the S.P.G. He was soon promoted to lieutenant, and was distinguished for his skill and coolness in patrol duty. In trying to bring in his brother officer, who had been mortally wounded, he himself was severely wounded. He received the M.C., but was in hospital for over ten months. On rejoining his old regiment in 1916 he became attached to the R.F.C., and in 1917 became an instructor in the R.A.F. He went out to the front again last September. Capt. Gill was educated first at Pennington House School, Bognor, and later at St. John's School, Leatherhead, of which he was an exhibitor. Capt. Gill married this year Louise Gwendolen, the youngest daughter of Mr. and Mrs. W. H. Cullen, of Mickleham Downs, Surrey.

Lieut. GILBERT ANTHONY GOODMAN, 10th Loyal North Lancs. Regt., attached R.A.F., who is reported to have been killed, was the only son of Mr. and Mrs. A. W. Goodman, of the Cloisters, Temple, Belvedere, Kent. Born in 1895, he was educated at Westminster, and shortly after the war broke out he enlisted in the U.P.S. Brigade, from which he exchanged into the Inns of Court O.T.C. He was gazetted to a commission in December, 1914, and shortly after was ordered to the French front, where he took part in several engagements. Owing to being mistaken for another officer of a similar name he was erroneously reported by the War Office as being killed, and a brief notice of his career appeared in *The Times* of April 20th, 1917. Happily, three days afterwards this was duly corrected, and Lieut. Goodman had the singular experience later of reading his own obituary notice. Some few weeks later he received a serious wound while leading his men in a gallant assault. Being invalided home to England last spring, he joined the R.A.F., and was gazetted on July 12th to a permanent lieutenancy in the Army, with seniority from September, 1915. After receiving his "wings" as pilot, he was suddenly ordered to the Italian front, and left on September 11th last for an unknown destination.

Sec. Lieut. SYDNEY HALL, R.A.F., late Manchester Regt., who was killed in action on October 18th, aged 28, was the son of Mr. and Mrs. Richard Hall, of Quarryton, Hayne Road, Beckenham, Kent. He fell in an aerial battle over a city which had been recently liberated from the enemy, and the

municipal council accorded him a public funeral, which was attended by representatives of military, local and other authorities.

Lieut. E. C. HOCKING, R.A.F., who has been killed in action, aged 22, was the son of Mr. Joseph Hocking, the novelist. He joined the Loyal North Lancashires as a private in September, 1914, and received his commission in December. He was wounded in the battle of the Somme, and after leaving hospital became A.D.C. to General Johnson. He transferred to the R.A.F. last autumn.

Lieut. WILBUR ARNOLD JOHN, Yeomanry, formerly attached Intelligence Corps, latterly R.A.F., 1, Queen's Gate, London, S.W., who was previously reported missing, now known to have been killed in action on July 31st, aged 23, was the younger son of Mr. and Mrs. Richard John, of Valparaiso, Chile.

Capt. JOHN TOWLSON MORGAN, Royal Welch Fusiliers, attached R.A.F., who was killed in action on October 29th, aged 20, was the eldest son of the Rev. E. A. and Mrs. Morgan, St. Andrew's Vicarage, Willesden Green.

Lieut. ALAN LUIS PINK, The Rifle Brigade, attached R.A.F., who was killed in action on October 30th, aged 20, was the elder son of the late John Francis Pink and Mrs. Pink, of 37, St. Martin's Street, London.

Sec. Lieut. HAROLD JARVIS CAVE THORN (JARVO), R.A.F., who died on October 31st from wounds received on October 30th, aged 20, was the younger son of Walter Thorn, 19, Great Portland Street, London, W. 1.

Capt. Frederick ("ERIC") WOODCOCK, M.C., R.A.F. (Flight Commander), who was killed in action on October 31st, aged 21, was the only son of F. A. Woodcock and Mrs. Woodcock, of "Ravenswood," Whalley Range, Manchester.

Capt. LENOX STANLEY ARBUTHNOT, R.A.F., who died on November 1st at Oxford through an accident, aged 20, was the only son of Major (late Suffolk Regt.) and Mrs. L. C. Arbuthnot.

Lieut. JACK P. BARRETT, R.A.F., late Lincolns, who died on November 1st from septic pneumonia, aged 24, was the eldest son of Mr. and Mrs. W. P. Barrett and husband of Vi Barrett.

Capt. DAVID C. BAUER, D.F.C., R.A.F., who died on November 3rd, while on active service abroad, of pneumonia, aged 28, was the only child of the late Julius Bauer and Mrs. Bauer, of Ruskin Manor, Denmark Hill, S.E.

Lieut. HENRY ALLEN EDRIIDGE-GREEN, R.W.F. (attached R.A.F.), who died on November 5th, at Castle Mount Military Hospital, aged 24, was the only son of F. W. Edridge-Green, M.D., F.R.C.S.

Lieut. VICTOR GEORGE GOODCHILD, R.A.F., who died on October 31st at a hospital abroad of pneumonia following influenza, was the only son of the late George Goodchild and Mrs. Brierly, Enys Road, Eastbourne, and the husband of Winifred Goodchild (nee Norburn).

Capt. HENRY PAUL DUNDAS HELM, R.A.F., late Border Regt., who died on November 6th, aged 24, was the eldest son of Dr. and Mrs. R. Dundas Helm.

Lieut. E. BRIAN HENDERSON, Western Ontario Regt. (attached R.A.F.), who died on November 3rd of septic pneumonia following influenza, was the eldest and only surviving son of E. G. Henderson, Windsor, Ontario, and husband of Marguerite Henderson.

Lieut. GEORGE STUART HITCH, King's Liverpool Regt., attached R.A.F., who died on November 9th of pneumonia, aged 27, was the third son of Albert and Mary Ada Hitch.

Lieut. PETER HOPCRAFT, R.A.F., who met his death during a raid on October 28th, at the age of 19, was the eldest son of Mr. G. P. Hopcraft, of Southam, near Cheltenham, whose second son, Midshipman Paul Hopcraft, R.N., was lost in the *Queen Mary* at the battle of Jutland. Lieut. P. Hopcraft entered the R.F.C. in March, 1917, and obtained his wings in August. In October, 1917, he was specially selected for heavy raiding machines, and was one of the first R.F.C. officers to bomb German towns. In December, 1917, he was recalled to act as instructor in this work, and was so employed for five months, and returned to France with his squadron in August, where he for some time acted as flight commander.

Capt. BENTFIELD CHARLES HUCKS died on November 6th from pneumonia, following on influenza. An appreciation of this famous pilot, together with a recent portrait, is given on p. 1284 in this issue.

Lieut. GEORGE ST. VINCENT PAWSON, M.C., R.A.F., who died on November 6th of septic pneumonia, following influ-



enza, aged 28, was the fourth son of the late William Hargrave Pawson, of Shoredan, Northumberland, and the Hon. Mrs. Howard, of Sibton Park, Lyminge.

Capt. A. WINTER ROSE, M.C., Yeomanry, who died at Hastings on Tuesday, October 29th, was the youngest son of the late T. E. Rose and Mrs. Rose, of Abingdon Villas, Kensington. He was educated at Bedford Modern School. Afterwards devoting himself to architecture, he won the travelling studentship of the Architectural Association and the Pugin medal and other distinctions. When war broke out he had a large practice at Westminster, some of his work being exhibited in the architectural section of the Royal Academy, and some being reproduced in the pages of *Country Life*, *The Builder*, &c. From 1907 he was captain of the Ealing Rugby Football Club, and was for some time considered one of the best forwards in the Eastern Counties' team. At the beginning of hostilities he obtained his commission in the Yeomanry, and devoted himself to recruiting and training. He went to France with his regiment in June, 1915, and was wounded at Monchy, where he won the M.C. Later he was appointed adjutant of his regiment. Returning from the front only this year to follow a Staff course, he was attached quite recently to an R.A.F. cadet school as instructor. Within a few days of taking up his new duties he contracted influenza, of which he died. He married in 1913 the only daughter of Mr. and Mrs. W. Foot Mitchell, of Quendon Hall, Essex, and leaves a widow and a daughter.

Lieut. KEITH MACDONALD SCOBIE, who was killed in an aeroplane accident, was the second and only surviving son of Mr. D. M. Scobie, late Indian P.W.D., of Hove. He was born in 1897 at Polmont, Stirlingshire, and, entering Brighton College as a scholar in 1910, he passed in September, 1915, into the Moyal Military Academy, Woolwich, taking a high position on the list. He passed out into the R.G.A., and served in France for nine months during the first Somme battles. He was sent home wounded in April, 1917, and after his recovery he exchanged this year into the Air Service, and had just completed his training for a pilot's certificate in the R.A.F. when he met his death.

Lieut. BROOKS HENOK STREET, The Welsh Regiment and R.A.F., who, on August 6th, was accidentally killed while flying abroad, was the only son of Mr. and Mrs. F. F. Street, Colombo, Ceylon.

Capt. G. W. SWANSON, who was drowned at sea on October 10th, aged 27, was the only son of the late W. O. Swanson and Mrs. Swanson, of "Fairfield," New Kilmainham, Dublin. He was educated at Bancroft's and London University, where he was in the O.T.C. He obtained a commission before the war in the 4th (Reserve) Hampshire Regiment, T.F. He became adjutant in 1915, but in the same year got his transfer to the R.F.C. He went out to Mesopotamia as a pilot on June 17th, 1916, but returned to England on April 20th, 1917, his nerves and health having broken down. He remained as technical officer in the R.A.F. until May, 1918, when, owing to bad health, he sent in his resignation, and returned to his own regiment. On June 3rd, 1916, at Bournemouth, he

married Brenda, younger daughter of the late James Hill, of Antwicks Manor, Letcombe Regis, Wantage, and of Mrs. Pratt, Highbury, Wantage.

Lieut. OLIVER BYERLEY WALTERS WILLS, R.A.F., M.C., who died on November 10th as the result of a flying accident in England, aged 26, was the son of Mr. and Mrs. George Tarlton Wills, son-in-law of Professor and Mrs. H. Wildon Carr.

Married

The marriage of Mr. CLAUDE BARRINGTON, R.A.F., and Miss VIOLET WARDROP took place quietly on Tuesday, November 5th, at Holy Trinity Church, Sloane Street.

Capt. K. G. GUNN, attached R.A.F., second son of Mr. and Mrs. George Gunn, of Ealing, was married very quietly on November 7th, at St. John the Divine, Bedford Hill, S.W., to FLORENCE MARJORIE, second daughter of Mr. and Mrs. Frederick Philp, of 68, Manville Road, Upper Tooting, S.W.

The marriage between Lieut. REGINALD MANBY, R.A.F., and Miss MARJORIE LEAN took place on Monday, November 11th, at St. Mary Abbot's Church, Kensington.

Major GEORGE REGINALD MOSER, R.A.F., son of George Moser, of Kendal, Westmorland, was married on November 5th, at the Church of the Annunciation, Bryanston Street, W., to GLADYS, youngest surviving daughter of William Henry Moberly, of Southampton.

Capt. GERALD T. TAIT, R.A.F., was married on November 5th at the Chateau de Chateaufort, near Grasse, Alpes Maritimes, to YSABEAU JOSEPHINE DE SUAREZ, youngest daughter of the Marquise d'Aulan and the late Marquis d'Aulan, formerly deputy of the Drôme.

EDWARD THEODORE, R.A.F., elder son of Mr. and Mrs. E. J. Crosier, East Boldon, co. Durham, was married on November 9th at All Saints' Church, Cleadon, to HANNAH TOSE ("NANCE"), eldest daughter of Capt. and Mrs. Biggs, "Meadowlands," Cleadon, near Sunderland.

To be Married

A marriage has been arranged, and will shortly take place in Paris, between Capt. L. D. DALZELL-McKEAN, R.A.F., Hornsea House, Hornsea, E. Yorks, youngest son of Hugh McKean, Dublin, and Mme. ELAINE DE MAJEWSKA, of Varsovie, Poland.

The marriage arranged between Lieut. H. K. GIBSON, Northumberland Fusiliers, attached R.A.F., and ELEANOR M. SMITH, will take place on November 27th at the parish church, Henley-on-Thames, at 12.

The engagement is announced between Major T. W. MULCAHY-MORGAN, M.C., R.A.F., third son of Mr. and Mrs. Mulcahy-Morgan, Roebuck Hill, Dundrum, co. Dublin, and BARBARA MARY HEAPE, only daughter of Mr. and Mrs. Walter Heape, Kings End House, Bicester, and 10, King's Bench Walk, Temple.

Item

The will of Lieut. EVANS DAVIES JONES, R.A.F., of Fishguard, killed in France, who died intestate, has been sworn at £1,421.



The Great Air Fight

STANDING out as unique in a wonderful series of aerial fights is that of Major W. G. Barker, whose work in the air had already won for him the D.S.O. (with two bars), D.F.C., M.C. (with bar), and the Italian Cross of Honour. The story of this epic is thus told by Mr. Philip Gibbs, the *Daily Chronicle* correspondent at the Front. "It happened over the Forest of Mormal. Major Barker saw a two-seater flying at 21,000 ft. to escape our Archies and any other trouble, and climbed up to it in a wide spiral and then from below fired at it. The German pilot and observer fell, their machine breaking in the air, and one man dropping in a parachute. Immediately a Fokker biplane came into view, and the major heard the whistling of bullets through his plane, and then felt a hammer stroke on his left thigh. He was hit, and for the moment stunned. His aeroplane began to spin out of control, but the major became conscious of his danger, and, instinctively touching his levers, got his grip again on the engine.

"Then he saw that he was surrounded by fifteen Fokkers, crowding about him for a death shot. His defence was by attack, and by a marvellous manœuvre he got his shots in first and three enemies fell. But the machine-guns were clattering about him, and the bullets were singing past his wires. Another hammer-blow struck him, this time shattering his left thigh-bone. He fainted clean away, and his machine dived helplessly. But once again the spirit of the man awakened to the instinct of self-preservation and anger

against those who were out to kill him. He handled his machine again, mastered it, and looked out for the Germans.

"Twelve to fifteen scouts were in his sky-space, taking up the hunt for him. He flew at one, and saw that his burst of fire set it alight, so that it became a falling flame. At the same time bullets were about him like wasps, and one of them smashed his left elbow, and his arm dropped and hung loose and useless.

"He was a one-handed man now, to steer and shoot against a new swarm of enemies that came like midges. He dived steeply to escape them, but eight more scouts chased him down. He could not avoid them, so fought them. He fought them by manœuvring for position with every 'stunt' known to airmen with a little morning wildness in their hearts. But this was cold, deadly skill. It was watched by ground observers, who held their breath at the sight of that one British aeroplane banking, nose-diving, looping, with a flock of Germans about him.

"For ten or twelve minutes he juggled with his aeroplane to get his target. He hit two and put them out of action, and then they had enough and he landed successfully.

"But when his machine came to rest he did not jump out. He sat all crumpled up with his head drooping, and it was on a stretcher that he went away. He is now in hospital, gravely wounded, and every man out here who knows how he fought between fifty and sixty hostile aircraft, and destroyed four and drove down six, hopes, with all his heart, that this air knight of ours will get well of his wounds."

BOOK REVIEWS.

"THE CURTAIN OF STEEL"

"*Quae cum ita sunt*, as Caesar used so pithily to remark, it may or may not be the case that the modesty of naval men is to be largely held to blame for a good deal of ignorance on the part of people who are simply thirsting for knowledge about ships and sailors. Yet, let the cause lie where it may, there is still room for a propaganda which would probably be greatly welcomed." Thus writes the Grand Fleet Chaplain in his fourth volume dealing with the Royal Navy in war time. He is too modest in saying such a propaganda would probably be welcomed; it certainly would. This is shown by the interest aroused by the little which has been published relative to the part which is being played by the Navy in the War. And even that little is frowned upon as infringing the tradition of the "Silent Service." It is all very well to boast of being a Silent Navy and to say of its men "They do not advertise," but it is not fair to grumble that the people at home never give a thought to those who are out on the Seven Seas where "the old trade's a-plying, and the old flag's a-flying."

We are glad however that "A Grand Fleet Chaplain" has braved the frowns and given us another of his delightful notebooks. In the preface he says:—"Here we have a long Naval Film, in six reels, and every single one of the picture is photographed from life." Reel one shows us the curtain being lowered—the Fleet which has just been dispersing after the most imposing Naval Review ever held, now making its way to its war base in the Northern Mists. Reel two—the Curtain in Place—gives us a glance or two at the happenings at that great base. In reel three—the Curtain Proves its Strength—we see the fighting spirit of the Navy; and in reel four—the Material of the Curtain—we are told something of the ships which go to make up the Grand Fleet. Reel five—the Curtain Raised—is fiction, a short picture of what might have happened if the Germans had been able to effect a landing on the East Coast, while in the last reel—Keeping the Curtain Down—there are more incidents in the day's work. All who take an interest in the Navy will want to read "The Curtain of Steel," and if you hear a man say "What's the British Navy doing?"—buy him a copy; if you lend him yours you'll never get it back! It is published by Messrs. Hodder and Stoughton, and the price is 6s.

"THE NAVY ETERNAL."

It is a pleasure indeed to have another volume from the pen of "Bartimeus," although it is too much to expect that he will again give us such a wonderful book as "Naval Occasions." In "The Navy Eternal—which is the Navy-that-Floats, the Navy-that-Flies and the Navy-under-the-Sea," however, there are several sketches which are perfect as word pictures. One of the best is the first—"Usque ab Ovo"—in which we are introduced to Harker, a "Britannia" term C.O.P. mentor, wet-nurse, sea-daddy, the outward and visible sign of Navy discipline to sixty-odd naval cadets who, though he harried none, were conscious of him as a flock of disconcerted sheep are aware of a wise collie. Another excellent piece of craftsmanship is "The Feet of the Young Men" in which we are told how an Admiral R.N. (retired) finished up his second time at sea—as a commander R.N.R. on convoy work—by sinking a German submarine.

In "The Epic of St. George's Day, 1918," "Bartimeus" has given us the most stirring account yet written of the raids on Zeebrugge and Ostend and in "Lest we Forget" he has retold with thrilling emphasis the gallant exploits of the "Shark," the "Swift" and "Broke," the "Botha" and "Morris" and the "Mary Rose."

The chapter on the "Navy-that-Flies" was written before the R.N.A.S. was absorbed in the R.A.F., and readers of FLIGHT will remember that the greater part of it appeared in these pages last year under that title, although the name of the author was not given. The author points out that he has included it in the book "without prejudice" as the lawyers say, and it is certainly worthy of a place. There are several other references to air-work in some of the sketches, and one of them gives a vivid story of a Blimp hunting a U-boat.

Not the least meritorious part of the book is the score or so charming little thumb-nail pen-and-ink sketches by Douglas Swale.

The book is published by Messrs. Hodder and Stoughton at 6s.

"OVER THE GERMAN LINES"

UNDER this title "Wings," who is a captain in the Royal Air Force, has collected a number of sketches which have appeared in various periodicals. They were written by the author in the first place in the form of letters for the benefit of his parents by way of giving them an insight into "what we do." They do not pretend to be reports of actual operations, but aim at giving an impression of the methods employed

and the experiences of those who made up an artillery squadron at the front. The writer was for about a year a member of such a squadron, and only had to give up flying because six or seven Huns would insist on interfering when he was engaged with an observer "doing a shoot," with the result that he was so badly wounded in the right arm that it was found necessary to amputate it above the elbow within half an hour of their return. "Wings" managed to bring his machine home and he is still in the R.A.F., but employed on other than flying duties.

He has many amusing anecdotes, one of the best of which tells how when a pilot and observer were returning from a visit to their old aerodrome they were attacked by a Hun. Unfortunately their machine-gun jammed, but the resourceful observer remembered a piece of stove-pipe—which they were taking back in order to fix up a stove in their new quarters. "He rested one end on the edge of his cock-pit, jamming it against the gun mounting to prevent it from being blown overboard. With his other hand he drew the loaded 'Verrey' pistol from the rack, placed the muzzle inside the end of the pipe. Then the next time one of the Huns closed in to attack he pointed his improvised gun in its direction and pulled the trigger."

"The result exceeded his wildest hopes. The pipe belched forth fire and smoke, and the flaming light sped past the German machine only a couple of feet above the pilot's head, startling that individual so much that he quite forgot to fire his machine gun and hurriedly swerved away again. Tubbs immediately reloaded the pistol and waited to see what would happen next, but the Huns had had enough, and whirling round they made off eastwards, full of eagerness to reach their aerodrome and report how they had been attacked by a new British machine carrying a 6-inch gun which fired blazing phosphorus shells!"

Messrs. Hodder and Stoughton are the publishers, and the price is 6s. net.

"MARSHAL FOCH"

"VICTORY always goes to those who deserve it by possessing the greatest power of will and intelligence." This is the favourite axiom of Marshal Foch we are told, and it helps us to see why he is such a successful commander. Again to the famous aphorism of Joseph de Maistre, "a lost battle is a battle one thinks one has lost, for a battle can never be really materially lost," the great commander who has led the Allied Armies to victory suggests the addition "a battle gained is a battle in which one will not confess oneself beaten."

It is certainly true to say that one of the outstanding characteristics of Marshal Foch is his faith, and this is prominently brought out in M. René Puaux's sketch of his career, which has been very capably translated into English by Mr. E. Allen. Not unnaturally M. Puaux lays considerable stress upon Marshal Foch's work as commandant of the French Staff College, and we remember with gratitude that it was M. Clemenceau who appointed him to that position in 1907. When he was offered the post, Foch said, "Thank you, but you are doubtless unaware that one of my brothers is a Jesuit." That was quite enough to damn him in the eyes of extreme Republicans, but, to his honour, the Tiger replied, "I know that, but I don't care a —. You will make good officers; that is the only thing that matters."

And he did make good officers. During the four years he was at the Staff College, Marshal Foch remodelled the whole system and curriculum, based on his belief that the higher branches of military science were indispensable in the higher commands.

M. Puaux quotes a portrait of Ludendorff by M. de Pourville who describes the late German Chief of Staff as "a typical logarithmic strategist, the typical chess-player—cool and inexorable." Very different, we are told, is General Foch. "He is no autocrat, bent on holding in his own hands all the wires of a complicated mechanism or making of his office a vast electric station with hundreds of handles on his switchboard of death and intrigue. All General Foch's strength is concentrated in his brain. . . . He has a military knowledge which makes him direct heir of the personal tradition of Napoleon Bonaparte. He takes refuge in meditation when grave problems are at stake. He studies them with the whole power of his mind and his heart, with the express desire to find the most complete and the most humane solution."

A brief analysis of Marshal Foch's work in the early stages of the war is given, but M. Puaux points out that this part of the book is necessarily incomplete. The book, however, is one which will be found very absorbing by those who realise that, although it is true to say that this has been a war of machinery, the machinery required a directing genius.

The book is published by Messrs. Hodder and Stoughton at 5s. net.

THE ROYAL AIR FORCE

London Gazette, November 5th.

The following temporary appointments are made at the Air Ministry:—
Staff Officers, 1st Class.—And to be actg. Lieut.-Cols. while so employed; if not already holding that rank:—Capt. (actg. Maj.) W. M. Cumming; Oct. 1st. Maj. (actg. Lieut.-Col.) A. H. W. E. Wynn; Oct. 18th.

Staff Officer, 2nd Class.—C. E. Thwaites (Temp. Capt., R.A.M.C.) is granted a temp. commn. as Capt., and to be actg. Maj. while so employed; Oct. 1st. **Staff Officers, 3rd Class.**—(T.) A. E. Hutton (Maj., Can. Engns.) is granted a temp. commn. as Capt., and to be Hon. Maj.; June 29th. (P.) Capt. E. J. Sayer, M.C.; Oct. 7th.

Staff Officer, 4th Class.—(T.) M. B. Baker (Temp. Sec. Lieut., R.E.) is granted a temp. commn. as Sec. Lieut., and to be actg. Lieut. while so employed; April 5th.

The following temporary appointments are made:—
Brig.-Commander.—Lieut.-Col. (actg. Col.) C. L. Courtney, D.S.O., and to be actg. Brig.-Gen. while so employed; Nov. 1st.

Staff Officers, 1st Class.—R. E. M. Russell, D.S.O. (Bt. Lieut.-Col. R.E.), 2nd is granted a temp. commn. as Lieut.-Col.; April 23rd. (Air.) Lieut.-Col. D. J. Allen; April 1st. (P.) Capt. (actg. Maj.) P. Sidney, and to be actg. Lieut.-Col. while so employed; Oct. 1st.

Staff Officers, 2nd Class.—J. M. Nicolle (Capt., S. Staff, R., S.R.), and is granted a temp. commn. as Capt., and to be actg. Maj. while so employed; April 1st. (P.) Lieut. (actg. Capt.) D. L. Blumenfeld, and to be actg. Maj. while so employed; Oct. 1st. Capt. (actg. Maj.) L. M. Wells-Bladen, and to retain his actg. rank while so employed, vice Capt. (actg. Maj.) A. J. W. Barmby; Oct. 18th.

Staff Officers, 3rd Class.—Lieut. (actg. Capt.) T. Fawdry; April 1st (substituted for notification in *Gazette*, July 30th). Lieut. J. S. Berdoe, and to be actg. Capt. while so employed; April 20th.

Staff Officers, 4th Class (1st Grade).—V. W. H. Ranger, M.C. (Capt., Oxf. and Bucks. L.I., T.F.), is granted a temp. commn. as Capt.; Sept. 20th. Lieut. A. R. Owens, and to be actg. Capt. while so employed; Nov. 1st.

Staff Officer, 4th Class (2nd Grade).—N. H. Underwood (Lieut., Leins. R., S.R.), and is granted a temp. commn. as Lieut.; April 1st.

Flying Branch.

Cpts. to be actg. Maj. while employed as Maj. (A.):—E. B. Mason; Sept. 25th. T. F. Hazell, D.S.O., M.C., D.F.C.; Oct. 22nd. A. G. Taylor; Oct. 24th. C. Patteson, M.C.; Oct. 25th.

Maj. G. H. Cox to be Maj. (A.), from (Ad.); Nov. 5th. Capt. F. R. Sadd to be actg. Maj. while employed as Maj. (K.B.); Oct. 14th.

Lieuts. to be actg. Cpts. while employed as Cpts. (A.):—(Hon. Capt.) H. S. Quigley, M.C., D.C.M.; May 24th. J. Speaks; Oct. 22nd. S. Turner; Oct. 27th. C. C. Banks, M.C., H. C. Beeston, R. Grady, O. W. A. Manning; Oct. 28th. T. S. Harrison; Oct. 29th.

Capt. (actg. Maj.) A. C. Jowett relinquishes the actg. rank of Maj.; Oct. 20th.

Lieut. (actg. Capt.) H. M. Goode retains the actg. rank of Capt. while employed as Capt. (A.), from (S.O.); Oct. 28th.

Lieuts. to be actg. Cpts. while employed as Cpts. (A. and S.):—(Hon. Capt.) N. B. Ward; July 1st. J. B. Barnes; Oct. 28th.

Capt. E. A. Bolton to be graded for pay as Capt. while employed as Capt. (A. and S.); Oct. 28th.

Capt. A. F. E. Warner to be graded for pay as Capt. while employed as Capt. (A'ship); April 1st.

Lieut. H. E. Clark, D.F.C., to be actg. Capt. while employed as Capt. (O.); Oct. 23rd.

Capt. A. L. Taylor to be graded for pay as Capt. while employed as Capt. (S.); Oct. 3rd.

Lieut. F. C. Vincent to be actg. Capt. while employed as Capt. (S.); Oct. 28th.

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lieuts. (A.):—E. G. Boyle; May 10th. H. A. Bartlett; July 20th. W. H. Leaf; July 24th. F. Fawcett; Sept. 17th. H. Bennett, F. K. Wilson; Sept. 18th. J. A. MacDonald, A. Bell; Sept. 19th. L. B. Robbins; Oct. 21st.

The following Flight Cadets are granted temp. commns. as Sec. Lieuts. (A.):—C. J. Johnson; Sept. 7th. G. W. H. De Carter; Sept. 8th. H. H. Stores; Oct. 6th. L. E. Jones, J. H. Jameson, E. J. Thornton, B. O. Mayne; Oct. 7th. G. V. Muir; Oct. 17th. C. H. Austin, C. L. Tallmadge, H. G. Brownell, F. Hughes; Oct. 18th. E. L. R. Delteil, W. F. Robertson, J. Garside; Oct. 19th. E. L. Millen, M. L. Selkirk; Oct. 20th. A. Smith, R. P. Kear, J. F. Turpie; Oct. 21st.

Sec. Lieut. S. F. Coleman to be Sec. Lieut. (A'ship), from (Tech.); Oct. 14th.

Sec. Lieut. A. R. Hedgecock (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lieut. (A'ship); Oct. 3rd.

The following Flight Cadets are granted temp. commns. as Sec. Lieuts. (A'ship):—W. M. Dorle, S. W. Gee; Oct. 3rd.

Sec. Lieut. R. Shillinglaw (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lieut. (Obs. Off.); Aug. 17th.

The following are granted temp. commns. as Sec. Lieuts. (Obs. Off.):—H. J. Keen (Lieut., Lond. R., T.F.) and to be hon. Lieut.; Sept. 29th. W. M. Brewer (Sec. Lieut., R.G.A., S.R.), B. Charlton (Temp. Sec. Lieut., New Armies, Gen. List); Oct. 3rd. C. F. Bailey (Temp. Sec. Lieut., Rif. Brig.); Oct. 8th. T. N. Donoyan (Temp. Sec. Lieut., attd. Bedf. R.); Oct. 16th. J. Stephenson (Temp. Sec. Lieut., Tank Corps); Oct. 19th. A. A. C. N. Smith; Nov. 1st.

The following Flight Cadets are granted temp. commns. as Sec. Lieuts. (Obs. Off.):—L. E. Morris, C. C. Aley, A. T. Shelley, A. E. Eagle, F. Randles; Oct. 23rd. N. Scott, E. J. R. Hack, E. A. Westwood; Oct. 25th. F. A. B. Andrews, A. M. Brown, J. H. Yalden, W. Emery, A. J. Young, C. E. Millson; Oct. 29th. H. Andrews; Nov. 2nd. J. W. Jakes, W. Leith, H. T. Fieldsend, E. W. Johnson; Nov. 3rd.

Prob. Flight Officer, W. B. Tretheway (late R.N.A.S.) is granted a temp. commn. as Sec. Lieut. (S.); May 13th (substituted for notification in *Gazette* Nov. 1st).

The following Lieuts. relinquish their commns. on ceasing to be employed: J. A. Stedman (Lieut., R.F.A., T.F.); May 4th. P. Waters (Lieut., Quebec R.); Oct. 15th.

Lieut. N. A. C. Williams is dismissed the service by sentence of a Field General Court-martial; July 5th.

Lieut. C. T. Felton relinquishes his commn. on account of ill-health caused by wounds, and is granted the hon. rank of Lieut.; Nov. 6th.

The following Lieuts. relinquish their commns. on account of ill-health contracted on active service:—E. M. Gilbert, M.C. (Essex R., S.R.); Nov. 6th. H. O. S. Pilkington (Lieut., Worc. R., T.F.) (Date of 1st commn., June 1st, 1916.)

E. T. Pruen (Lieut., Glouc. R.) relinquishes his commn. on account of ill-health; Nov. 6th.

Sec. Lieut. J. R. Brown resigns his commn.; Nov. 6th.

The following Lieuts. relinquish their commns., being physically unsuited for the duties of Pilots or Observers:—L. H. N. Langworthy, R. L. Rideout; Nov. 6th.

The following Sec. Lieuts. relinquish their commns., being physically unsuited for the duties of Pilots or Observers:—W. A. Ball, A. J. Bonella, C. R. Calder, F. Farmer, S. G. T. Spear, R. R. Truscott; Nov. 6th.

The dates of appointment of the following as Sec. Lieuts. (A.) are ante-dated as stated against their names:—V. F. Bendrodt; May 8th. F. R. Pemberton; June 14th. H. Bennett; Aug. 5th. G. A. Coulter; Aug. 10th. R. Smith; Aug. 22nd. C. F. Baumhofer; Aug. 30th.

The name of Flight Cadet Richard Albert Cully is as now described and not as in *Gazette* Oct. 22nd.

The name of Flight Cadet Harold Dures Rainier is as now described and not as in *Gazette* Oct. 15th.

The Christian names of Flight Cadet Harold George Tyler are as now described and not as in *Gazette* Oct. 22nd.

Administrative Branch.

A. W. C. McFall (Maj., Hon. Lieut.-Col., ret. pay) is granted a temp. commn. as Lieut.-Col.; May 6th (substituted for notification in *Gazette*, June 11th).

Maj. J. E. Parkin, M.B.E., to be actg. Lieut.-Col. while employed as Lieut.-Col.; Oct. 1st.

Capt. (actg. Maj.) A. J. W. Barmby retains the actg. rank of Maj. while employed as Maj. from (S.O.); Oct. 18th.

Lieuts. to be actg. Cpts. while employed as Cpts.:—G. C. Cheshire; Aug. 28th. P. F. Lines, from (A.P.T.); Oct. 26th.

Sec. Lieut. J. E. Carter to be actg. Capt. while employed as Capt.; Aug. 3rd.

Cpts. to be Cpts.:—G. G. Braithwaite, from (S.O.); Sept. 1st. J. C. M. Hay, from (A.); Oct. 5th.

To be graded for pay as Cpts. while employed as Cpts.:—Lieut. (actg. Capt.) M. G. Kiddy; Oct. 1st. Sec. Lieut. (actg. Capt.) J. I. Thompson; Oct. 7th.

Lieut. (actg. Capt.) R. R. Prentice retains the actg. rank of Capt. while empld. as Cpts., from (S.O.); Oct. 18th.

Lieuts. (A.) to be Lieuts.:—(Hon. Capt.) C. G. E. Yarde; July 13th. G. Verden; July 26th. F. V. Tattersall; Sept. 19th. J. L. Probit; Oct. 8th. R. C. Bishop; Oct. 12th. J. H. Firstbrook; Oct. 13th. F. W. Nelson, A. S. H. Ryding, L. Strudwick; Oct. 19th. W. T. Bassett, J. K. Clifford-Jones, L. V. Marchant; Oct. 26th. A. H. Jarvis; Oct. 31st. J. D. Davidson; Nov. 2nd.

Lieuts. to be Lieuts.:—R. S. C. D. Ashby, from (A. and S.); Aug. 24th. C. J. Reynolds, from (K.B.); Oct. 21st. J. C. McKeever, from (O.); Oct. 26th. Capt. C. T. Wilkinson to be graded for pay as Lieut., from (S.); Sept. 19th. Lieut. (actg. Capt.) W. S. de Ropp, to be Lieut., and relinquishes the actg. rank of Capt., from (S.O.); Sept. 21st.

The following are granted temp. commns. as Lieuts.:—R. Elcock (Lieut., L'pool R.); April 1st. R. E. Pole (Temp. Capt., Hon. Maj.), Gen. List, and to be Hon. Maj.; July 18th. R. W. F. Cecil (Temp. Capt., Gen. List), and to be Hon. Capt.; Sir A. Hazlerigg (Temp. Capt., Gen. List), and to be Hon. Capt.; Sir M. T. Stapleton, Bt. (Temp. Capt., Gen. List), and to be Hon. Capt.; D. V. D. Thomas (Temp. Lieut., Gen. List); Sept. 13th. F. W. Newby (Temp. Lieut., Gen. List); Sept. 14th. F. G. Steel (Lieut., R.F.A., S.R.); Sept. 20th. J. W. Cook (Temp. Capt., N. Staffs. R., attd. York and Lanc. R.), and to be Hon. Capt.; Oct. 8th. A. K. Nunes (Temp. Capt., B.W.I.R.), and to be Hon. Capt.; Oct. 22nd. W. P. Spooner, M.C. (Capt., Essex R.), and to be Hon. Capt.; Oct. 23rd. H. B. Day (Capt. and Qr.-Mr., Lond. R.), and to be Hon. Capt.; Oct. 24th. S. H. Evans (Lieut., S. Staffs. R.); E. T. H. Hill (Lieut., Essex R.); Oct. 25th.

A. J. Battine (Maj., R.A., Res. of Off., Ret. List) is granted a temp. commn. as Lieut. and to be Hon. Maj.; Oct. 31st.

Sec. Lieuts. to be actg. Lieuts. whilst employed as Lieuts.:—A. E. Boyce, from (T.); April 1st. (Hon. Lieut.) G. H. Heys; Sept. 2nd. (Hon. Capt.) A. K. O. Cochrane; Sept. 26th. E. L. Botham, from (T.); Oct. 1st. T. Scott; Oct. 21st.

The following are granted temp. commns. as Sec. Lieuts., and to be actg. Lieuts. whilst specially employed:—A. C. Marquis Douro (Temp. Sec. Lieut., Gen. List); Sept. 17th. F. L. Carter; Oct. 23rd. C. N. Crutwell; Oct. 28th. R. N. H. Cole, L. T. Hoare; Nov. 1st.

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their rank as Sec. Lieuts.:—A. G. Quinnell; Sept. 27th. A. M. Adam, J. F. R. Stobie, G. Waugh, C. Moss, F. Sumpter, E. C. Haggart, A. A. Dutch, F. E. Shersby, E. P. Woodman, C. R. Calder, E. Aphomas, L. Greathach, F. L. Peplow, E. Higgs, W. R. Wood, P. M. Cooke, W. R. Taylor, R. W. Stoner; Oct. 8th. E. W. Pringle; Oct. 11th.

Sec. Lieuts. (Obs. Offrs.) to be Sec. Lieuts.:—S. R. Durdin; Oct. 8th. G. L. Shaw; Oct. 9th.

Sec. Lieuts. (Tech.) to be Sec. Lieuts.:—W. Fell; Sept. 4th. A. L. Underwood; Oct. 10th.

Sec. Lieut. W. Gow to be Sec. Lieut., from (A.); Sept. 4th.

The following are granted temp. commns. as Sec. Lieuts.:—J. D. Smart (Sec. Lieut., Middx. R., T.F.); July 10th. J. McGilley (Temp. Sec. Lieut., York. R.); Sept. 3rd. L. W. H. Bertie (Temp. Sec. Lieut., Gen. List); Sept. 18th. L. Singer (Temp. Sec. Lieut., Labour Corps, J. J. McBrearty (Temp. Sec. Lieut., attd. R. Dub. Fus.); Sept. 30th. F. J. E. Brake (Sec. Lieut., R.F.A., S.R.); Oct. 2nd. S. W. Bankfield; Oct. 19th. C. L. Pinker; Oct. 26th. A. E. Ainsworth, H. Aulif, D. F. Bowering, W. R. Bowmer, H. V. Hall, B. W. Hatch, H. W. Hills, C. E. Hutchence, J. L. Ingham, E. Le Conteur, W. S. Leeming, E. W. Liddiard, E. B. McLarea, L. R. Merfield, S. Pollard, F. W. Pridham, G. P. Raines, H. G. G. Rawlings, L. C. Shepherd, C. E. Shirley, G. H. Stanley, R. A. Stoker, R. O. Street, H. Vincent A. W. Whistcroft; Nov. 1st.

Capt. W. R. Dainty relinquishes his commn. on account of ill-health contracted on active service, and is granted the hon. rank of Capt.; Nov. 6th.

Sec. Lieut. R. G. Mackall relinquishes his commn. on account of ill-health, and is granted the hon. rank of Sec. Lieut.; Nov. 6th.

The following Sec. Lieuts. resign their commns., being physically unsuited for the duties of Pilots or Observers:—W. P. N. Hudson, S. W. White; Nov. 6th.

The surname of Lieut. (actg. Capt.) B. F. Bond is as now described, and not Ford, as in *Gazette*, Sept. 27th.

The initials of Lieut. R. F. Sinclair are as now described, and not as stated in *Gazette*, Oct. 13th.

The notification in *Gazette*, Oct. 8th, concerning Sec. Lieut. W. R. Gemmill is cancelled.

Technical Branch.

Capt. W. R. Abbott to be Capt., from (O.); Sept. 9th.
The following Lieuts. to be actg. Capt. whilst employed as Capt.:—S. A. Turner; Aug. 14th. N. Goodwin; Sept. 2nd. H. S. Evamy, from (O.); Oct. 1st. D. J. Reason, from (A.); Oct. 11th.
The following Sec. Lieuts. to be actg. Capt. whilst specially employed:—H. Chaplin; Sept. 24th. (Hon. Lieut.) A. Armstrong, (actg. Lieut.) J. Burden; Oct. 14th.

The following are granted temp. commns. as Lieuts.:—S. J. Furse (Temp. Lieut., Gen. List); Sept. 14th. R. L. Cantle (Sub-Lieut., R.N.V.R.); Oct. 12th.

Lieut. A. E. Lowry to be Lieut., from (K.B.); Oct. 9th.
Sec. Lieuts. to be actg. Lieuts. whilst employed as Lieuts.:—(Hon. Capt.) R. H. Brewis; July 16th. (Hon. Lieut.) C. S. Edwards; Sept. 2nd. (Hon. Lieut.) W. F. Baker, P. Brass, (Hon. Lieut.) F. N. Trinder, J. E. Tyrrell; Oct. 1st. McL. N. Straight; Nov. 1st. A. A. McConnell; Nov. 2nd.

The following Sec. Lieuts. (actg. Lieuts.) retain the actg. rank of Lieut. whilst employed as Lieuts., from (Ad.):—C. A. Assiter, L. H. Bainton; Aug. 26th. W. J. Root; Aug. 30th. G. D. G. Hake, R. N. Tweedy; Sept. 2nd.

Lieut. T. S. Oliver to be Sec. Lieut., from (A.), but to retain the rank of Lieut. without pay and allowances; Sept. 19th.

Sec. Lieut. W. Fenton to be Sec. Lieut., from (A'ship); Oct. 14th.
The following are granted temp. commns. as Sec. Lieut.:—P. M. George (Lieut., Ches. R., T.F.), and to be Hon. Lieut.; April 26th. C. H. Quelch (Temp. Sec. Lieut., B.E.); Aug. 8th. A. F. Johnstone; Oct. 9th. W. E. Wells, J. A. Wilkie; Nov. 1st. Sec. Lieut. J. V. Yates (late Gen. List, R.F.C., on prob.) is confirmed in his rank as Sec. Lieut.; Aug. 4th.

Sec. Lieut. (Hon. Lieut.) C. W. Barnsley relinquishes his commn. on account of ill-health, and is granted the hon. rank of Lieut.; Nov. 6th.

Sec. Lieut. H. A. Holland (late R.N.A.S.) relinquishes his commn. on account of ill-health, contracted on active service, and is granted the hon. rank of Sec. Lieut.; Nov. 6th.

Sec. Lieut. J. Macbeath relinquishes his commn. on account of ill-health, and is granted the hon. rank of Sec. Lieut.; Nov. 6th.

Medical Branch.

W. Lessey (late Capt., R.A.M.C.) is granted a temp. commn. as Capt.; Sept. 20th (substituted for notification in *Gazette* Oct. 11th).

The following are granted temp. commns. as Capt.:—G. Fehresen, W. Lumley (late Capt., R.A.M.C.); Oct. 30th.

The following are granted temp. commns. as Lieuts.:—R. E. Burns; Oct. 30th. M. Hyman; Oct. 31st. N. C. Cooper, S. R. E. Davies, J. Gorsky, K. D. F. Waters; Nov. 1st.

Dental Branch.

The following are granted temp. commns. as Lieuts.:—R. S. H. Drabble, P. J. Proud; Oct. 30th. L. S. Kettlewell, G. J. Roberts; Oct. 31st.

Memoranda.

Lieut. (Hon. Capt.) J. C. Watson to be actg. Maj. whilst specially employed; Nov. 5th.

E. J. Sayer, M.C. (Qmr. and Capt., T.F., Spec. List), is granted a temp. commn. as Capt.; April 1st.

To be Hon. Capt.:—Lieut. S. J. Read, Sec. Lieut. H. J. Bullock.

J. E. Faid (late Lieut., R.A.F.) is granted the hon. rank of Lieut.; Oct. 2nd.

Lieut.-Col. G. L. Crossman, C.M.G., D.S.O., relinquishes his appointment as S.O., 1st Class; April 12th.

Capt. F. Egerton (Lieut., Lancers) relinquishes his commn. on ceasing to be employed; Oct. 14th.

Sec. Lieut. W. A. Allen to take rank and prec. in the Air Force as if his appointment as Sec. Lieut. bore date Sept. 9th.

London Gazette, November 8th.

The following temporary appointments are made at the Air Ministry:—

Assistant Director.—Graded for purposes of pay as S.O.:—Capt. G. W. Parkinson, M.C., and to be actg. Lieut.-Col. whilst so employed; Oct. 10th.

Staff Officer, 1st Class.—The date of appointment of Lieut.-Col. C. R. Finch-Noyes, D.S.O., is Oct. 10th, and not as stated in *Gazette* Oct. 25th.

Staff Officer, 2nd Class.—(T.) E. C. St. John (Lieut., R.N.V.R.), is granted a temp. commn. as Capt., and to be actg. Maj. whilst so employed; April 9th.

Staff Officers, 3rd Class.—Lieut. (actg. Capt.) A. D. Finney, and to retain his actg. rank while so employed; Oct. 20th. (T.) G. W. Parkinson, M.C. (Capt., R.E., T.F.), is granted a temp. commn. as Capt.; June 11th.

Staff Officer, 4th Class.—(T.) W. D. Cairns (Temp. Lieut., R.E.) is granted a temp. commn. as Lieut.; April 18th.

The following temporary appointments are made:—

Area Commander.—Col. (actg. Brig.-Gen.) P. W. Game, D.S.O., and to be actg. Maj.-Gen. while so employed; Oct. 14th.

Staff Officers, 2nd Class.—And to be actg. Maj. while so employed:—(P.) Capt. J. Rubie; April 1st. (Air) Capt. H. A. Fordham; Nov. 1st.

Staff Officers, 3rd Class.—And to be actg. Capt. while so employed, if not already holding that rank:—Capt. J. M. Mitchell; April 1st. (Air) Lieut. W. H. Howell; Oct. 14th. (Q.) Sec. Lieut. (actg. Lieut.) H. K. Fairbrother; Oct. 22nd. (P.) Lieut. F. Dance; Nov. 1st.

Staff Officers, 4th Class (2nd Grade).—W. E. Rubens (Lieut., Essex R., T.F.), and is granted a temp. commn. as Lieut.; Aug. 21st. Sec. Lieut. J. W. Mavall, and to be actg. Lieut. while so employed; Oct. 8th. Lieut. J. H. Pollitt; Nov. 1st.

Flying Branch.

Maj. C. O. F. Modin, D.S.C., reverts to Capt. (A.) at his own request, from (S.O.); Oct. 25th.

Lieut. C. L. Morley, D.F.C., to be actg. Capt. while employed as Capt. (A.); Oct. 27th.

Capt. W. F. Dickson, D.S.O., to be graded for pay as Capt. while employed as Capt. (A. and S.); Oct. 7th.

C. J. Geddes to be Lieut. (A.), from (T.); Oct. 18th.

To be Lieuts. (A.), from (Obs. Officers):—G. M. Moore; April 27th. L. W. Heath; Oct. 14th. M. H. Picot, M.C.; Oct. 18th. L. A. Powell, M.C.; Oct. 19th. H. C. Black; Oct. 21st.

Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lieuts. (A.):—G. Slater; April 11th. H. J. O'Connor; July 26th. F. W. Long; July 27th. J. Bradbury; July 30th (date of 1st Com. Feb. 7th. F. H. Solomon; Aug. 29th. H. Stamp; Sept. 30th. C. H. Stocks; Oct. 17th. M. F. Johnstone; Oct. 13th. W. J. Bird, L. L. Nelson, W. W. Ash, W. H. L. Oxlard; Oct. 15th. A. R. Lamb, A. V. Redwood, P. J. Dowell; Oct. 16th. F. E. B. Jones, P. Crummer, L. B. Clarke, G. Pascal; Oct. 17th. J. S. Howard, W. Mullen, J. H. C. Norgarh, J. Fraser; Oct. 18th. G. R. Bradley, P. McNaught, E. H. Duffy, D. Davies, A. W. Cornforth, D. M. Jenkins; Oct. 19th. W. T. Doherty, J. H. Mitchell, J. T. Pelletier, J. M. Branton; Oct. 20th. J. N. Boanson; Oct. 23rd.

The following are granted temp. commns. as Sec. Lieuts. (A.):—B. O. Davis (Sec. Lieut., Yorks. L.I., T.F.); July 27th. F. W. Hicks (Sec. Lieut., Lond. R., T.F.); Oct. 14th. W. D. Blatch (Lieut., Derby Yeo., T.F.), and to be Hon. Lieut.; Oct. 15th. J. S. Monteith (Sec. Lieut., Scot. Rif., T.F.),

W. R. Vane (Temp. Sec. Lieut., Rif. Brig.), H. C. Hall (Temp. Sec. Lieut., Essex R.); Oct. 16th. W. S. Shaw (Lieut., W. Rid. R., T.F.), and to be Hon. Lieut., H. Goodier (Sec. Lieut., L'pool R., T.F.), J. M. Donald (Temp. Sec. Lieut., Hamp. R.); W. V. Hyde (Lieut., R. Innis. Fus., Res.), and to be Hon. Lieut., W. H. Little (Sec. Lieut., Midd'x. R., T.F.), F. A. W. Willis (Temp. Lieut., R. War. R.), and to be Hon. Lieut.; Oct. 17th. H. Edge (Temp. Sec. Lieut., W. York. R.), D. A. Hughes (Temp. Sec. Lieut., Ches. R.), A. Woolsey (Sec. Lieut., North'n R.), C. Sneyby (Temp. Sec. Lieut., Suff. R.), A. R. Lees (Sec. Lieut., Lond. R., T.F.); Oct. 18th. J. A. MacDiarmid (Lieut., Sask. R., C.E.F.), and to be Hon. Lieut., P. W. Smith (Sec. Lieut., R. Fus.), L. Beavis (Sec. Lieut., S. Staffs. R., T.F.), G. B. Savi (Lieut., R.D.C., T.F.), and to be Hon. Lieut.; Oct. 19th. G. M. Badley (Lieut., Linc. R., T.F.), and to be Hon. Lieut.; Oct. 20th. J. Jackson (Temp. Sec. Lieut., Rif. Brig.); Oct. 22nd.

The following Prob. Flight Officers (late R.N.A.S.) are granted temp. commns. as Sec. Lieuts. (A.):—C. R. T. Donaldson; May 9th. G. Campbell; Oct. 14th. C. Buckingham; Oct. 15th. F. N. Sutherland, J. N. Bittion; Oct. 16th. W. G. Morris, W. R. Parkhouse, R. R. Bragg; Oct. 18th. W. C. Nelson; Oct. 19th. W. O'M. Bedard, C. R. Coulson; Oct. 20th. S. G. French; Oct. 21st.

The following Flight Cadets are granted temp. commns. as Sec. Lieuts. (A.):—A. D. Binnie; Oct. 15th. D. G. R. Lord, A. Dickenson, A. R. Rimmer, E. H. J. Davidson, W. G. Duncombe; Oct. 21st. H. S. Greening, W. Taylor, N. W. McLellan; Oct. 22nd. G. H. Mitchell, G. J. Teather, J. Biggam, H. G. L. Williams, E. R. H. Pretlove, F. A. L. Addison, J. Turner; Oct. 23rd. F. L. Kay, G. R. Biggs; Oct. 24th. J. H. L. Cowin; Oct. 25th. H. J. Padfield; Oct. 26th. A. E. Warnes; Oct. 27th.

The following Flight Cadets are granted temp. commns. as Sec. Lieuts. (A. and S.):—W. Melvin; July 20th. A. G. T. Wills; Aug. 3rd. S. S. Kinston; Aug. 10th. C. E. Sherwood, C. C. Stubbs, M. Segel, G. F. Sheard, H. H. Clarke, A. W. P. Clarke, H. Clayton, R. J. Green, A. S. Hartley, H. H. Jager, L. H. Jager, L. Jacobs, J. F. R. Johnstone, L. L. Locke, A. R. Murray, A. A. Moir, G. D. Nisbet, B. B. Nelson, J. E. E. Owens, W. M. Oosthuizen, G. Leslie, W. J. Pridgeon, K. H. Ridgway, V. O. Reid, F. H. L. Tindall, J. Terry, C. W. Taute, W. H. A. Tedder, O. Wood, F. Wroth, T. G. Woodley, A. Waigowsky, W. R. Norton, G. I. Murray, L. H. Paxton; Oct. 26th.

Sec. Lieuts. to be Sec. Lieuts. (K.B.), from (T.):—G. J. Gawthorn, C. W. Harrison; Oct. 19th.

Sec. Lieut. C. Volk to be Sec. Lieut. (K.B.), from Admin.; Oct. 19th.
The following are granted temp. commns. as Sec. Lieuts. (K.B.):—H. Beckett (Lieut., E. Lan. R., T.F.), and to be Hon. Lieut.; Sept. 24th. D. N. Drybrough (Capt., Arg. and Suth'd. Highrs., T.F.), and to be Hon. Capt., R. M. Thomas (Sec. Lieut., R.G.A., S.R.); Oct. 8th. J. F. Scott (Temp. Lieut., R. Fus.), and to be Hon. Lieut.; Oct. 12th. H. Dillon (Temp. Sec. Lieut., N. Lan. R.); Oct. 15th. C. H. H. C. Cook (Lieut., D. of Corn. L.I.), and to be Hon. Lieut., H. M. Fulton (Lieut., Nov. Scotia R., C.E.F.), and to be Hon. Lieut., A. G. Fleming (Lieut., Sco. Rif., T.F.), and to be Hon. Lieut.; Oct. 17th.

Prob. Flt. Officer K. S. Rankin is granted a temp. commn. as Sec. Lieut. (K.B.); Oct. 12th.

The following Flight Cadets are granted temp. commns. as Sec. Lieuts. (K.B.):—E. Brogan, H. H. Watts, B. MacNear; Oct. 12th.

The following Sec. Lieuts. (late Gen. List, R.F.C., on prob.) are confirmed in their ranks as Sec. Lieuts. (Obs. Officers):—T. B. Howard; Oct. 15th (substituted for notification in *Gazette* Oct. 8th). B. G. J. Wood; Oct. 15th. B. Garrett; Oct. 17th (substituted for notification in *Gazette* Oct. 1st).

The following are granted temp. commns. as Sec. Lieuts. (Obs. Officers):—F. H. Pritchard (Capt., R.G.A.), and to be Hon. Capt.; May 10th. F. D. Kilby (Temp. Sec. Lieut., R. War. R.); June 20th. V. O. Hilliard (Sec. Lieut., North'd Fus., T.F.); June 24th. W. J. P. Dicks (Temp. Lieut., N. Staffs. R.), and to be Hon. Lieut.; M. H. C. Slaytor (Sec. Lieut., R. Guernsey L.I.); Oct. 13th. E. B. Henderson (Lieut., C. Ont. R., C.E.F.), and to be Hon. Lieut.; C. E. Oglesby (Lieut., W. Ont. R., C.E.F.), and to be Hon. Lieut.; S. C. Garner (Lieut., R.F.A.), and to be Hon. Lieut.; D. Megson (Sec. Lieut., K. L'pool R., T.F.); W. A. Sabine (Sec. Lieut., Notts and Derby R., T.F.); L. G. Speck (Sec. Lieut., Lond. R., T.F.); C. Ware (Temp. Sec. Lieut., Ches. R.); Oct. 15th. G. Davies (Sec. Lieut., N. Lan. R., S.R.); Oct. 17th. J. H. MacKellar (Lieut., High. L.I.), and to be Hon. Lieut.; C. H. Redhead (Temp. Sec. Lieut., Manch. R.); T. W. Sheppard (Temp. Sec. Lieut., Tank Corps); J. W. Sinton (Temp. Sec. Lieut., R. Ir. Fus., S.R.); Oct. 21st. P. Franklin (Temp. Lieut., K.O. York. L.I.), and to be Hon. Lieut.; J. S. Fletcher-Watson (Lieut., R.G.A., S.R.), and to be Hon. Lieut.; W. H. Anderton (Temp. Sec. Lieut., E. York. R.); J. R. Bartlett, M.M. (Sec. Lieut., Bord. R., S.R.); J. Hill (Temp. Sec. Lieut., W. York. R.); W. E. Hargreaves (Sec. Lieut., R. Lancs. R., S.R.); L. Smith (Sec. Lieut., York L.I.); Oct. 22nd. W. A. Ross (Lieut., Sask. R., C.E.F.), and to be Hon. Lieut.; C. L. Douthwaite (Sec. Lieut., E. York R., T.F.) (substituted for notification in *Gazette* Oct. 8th); Oct. 23rd. W. E. J. Bloodworth (Temp. Sec. Lieut., Leic. R.), D. G. O. Hepworth (Temp. Lieut., W. York. R.), and to be Hon. Lieut.; Nov. 3rd. W. R. Scutt (Sec. Lieut., R. War. R., T.F.), I. H. Turkington (Temp. Sec. Lieut., R. Ir. Rif.), A. V. Owens (Temp. Sec. Lieut., York. L.I.), J. L. L. Thomson (Sec. Lieut., Berks. R., T.F.), E. J. Suter (Temp. Sec. Lieut., A.S.C.); Nov. 7th.

The following Flight Cadets are granted temp. commns. as Sec. Lieut. (Obs. Officers):—F. L. Roberts, F. T. Brown; Oct. 7th.

The following Cadets are granted temp. commns. as Sec. Lieuts. (Obs. Officers):—(Substituted for notification in *Gazette* Oct. 1st).—G. O. Parker, A. Talbot; Oct. 7th.

The following Prob. Flight Officers (late R.N.A.S.) are granted temp. commns. as Sec. Lieuts. (S.):—A. W. Gan, J. A. McDonald, T. B. Sedgwick, D. L. Townsend; Oct. 13th. T. L. Elliott, R. E. Cole; Oct. 16th. J. H. Taylor, H. P. Smart, S. G. Cook, J. Masterton; Oct. 18th.

The following Lieuts. relinquish their commns. on ceasing to be employed: G. B. Foster; Sept. 15th. (Hon. Capt.) A. F. Smith (Capt., Ches. R., T.F.); Oct. 15th.

Lieut. K. W. Cocking relinquishes his commn., and is granted the hon. rank of Lieut.; Nov. 9th.

The following Lieuts. resign their commns. to resume their medical studies; and are granted the hon. rank of Lieut.:—J. H. Herriott, G. S. Morgan; Nov. 9th.

The following Lieuts. relinquish their commns., being physically unsuited for the duties of Pilots or Observers:—S. B. Cole, R. B. Donald, C. J. Devlin, and is granted the hon. rank of Lieut., J. F. Good, and is granted the hon. rank of Lieut.; Nov. 9th.

Sec. Lieut. H. C. Petch relinquishes his commn. to resume his medical studies, and is granted the hon. rank of Sec. Lieut.; June 13th. (Substituted for notification in *Gazette* Sept. 3rd).

Sec. Lieut. W. V. Wright resigns his commn.; Nov. 9th.

The following Sec. Lieuts. relinquish their commns., being physically unsuited for the duties of Pilots or Observers:—J. E. Bain, D. D. Carcary, C. K. D. Fraser; Nov. 9th.

The initials of Lieut. W. C. Mead are as now described, and not as in *Gazette* Sept. 20th.

The surname of Lieut. (actg. Capt.) M. A. Newnham is as now described, and not Newman as in *Gazette* Oct. 15th.

Administrative Branch.

Lieut.-Col. (actg. Col.) G. M. Griffith to be Lieut.-Col., and to relinquish the actg. rank of Col. from (S.O.); Nov. 6th.

Maj. G. B. Rickards, M.C., to be Maj. from (A.); Aug. 19th. The following are granted temp. commns. as Maj. :—J. B. Batten, D.S.O., (Maj. R. Fus., S.R.), and to be graded for pay as S.O., 2nd Class, Grade 2; April 23rd. E. A. Noel (Maj., Lond. R., T.F.); April 1st.

The following are granted temp. commns. as Capt., and to be actg. Maj. while employed as Maj. :—J. S. Magrath (Capt., Suss. R.), P. C. Suckling (Capt., attd. R. Fus.); April 1st.

Cpts. to be actg. Maj. while employed as Maj. :—T. Gash, E. L. Oliver, M.C.; April 1st. G. R. Kevill-Davies; April 13th. W. M. Urquhart, M.C.; April 24th. T. J. Brampton; May 28th. E. C. Baker; June 1st. L. E. Claremont, R. B. H. Lechmore, V. Percy-Smith; Oct. 28th.

Lieuts. (actg. Cpts.) to be Temp. Maj. while employed as Maj. :—R. H. W. Hope, M.C.; April 1st. G. W. Cox; May 22nd. A. E. Worrall, M.C.; June 1st. R. C. Green; July 21st. R. L. Briscoe, J. G. Lumsden, W. Watson; Oct. 28th.

Cpts. to be graded for pay as S.O., 2nd Class, Grade 2, and to be actg. Maj. while employed as Maj. :—S. M. Pearce; April 1st. N. A. Daniell; May 6th. F. Hill; July 19th.

Lieuts. to be actg. Maj. while employed as Maj. :—J. Abbott; May 5th. G. S. Fitzgerald, W. J. C. Kendall; May 20th.

N. McArthur (Lieut., Cam. Highrs., T.F.) is granted a temp. commn. as Lieut., and to be graded for pay as S.O., 2nd Class, Grade 2, and to be actg. Maj. while employed as Maj.; April 26th.

The following are granted temp. commns. as Capt., and to be graded for pay as S.O., 2nd Class, Grade 2, and to be actg. Maj. while employed as Maj. :—H. S. Blockey (Capt., S. Staff. R.); July 18th. C. Hayes (Capt., Yorks. L.I., S.R.); July 20th.

The following are granted temp. commns. as Capt. and to be actg. Maj. while employed as Maj. :—J. P. Larkin (Temp. Capt., attd. K.O.S.B.); April 1st. E. R. Slaney (Temp. Capt., attd. R. W. Kent R.); April 15th.

The following are granted temp. commns. as Lieuts., and to be actg. Maj. while employed as Maj. :—C. McK. McGavin (Temp. Lieut., attd. R. Sco. Fus.); April 1st. Hon. F. O. H. Eaton, D.S.O. (Lieut., Gren. Gds.); May 14th. P. Gurrey (Lieut., Suff. R.); June 4th. H. S. Quekett (Lieut., R. Highrs., T.F.); June 6th.

The following are granted temp. commns. as Cpts. :—P. F. Ayrton (Capt., Lond. R., T.F.), E. C. Baker (Capt., Lond. R., T.F.), A. H. Brucker (Capt., Oxf. and Bucks L.I.), T. J. Brampton (Temp. Capt., attd. K.R.R.C.), J. Crow (Capt. and Qrmr., Gen. List, T.F.), L. M. S. N. Conolly (Temp. Capt., attd. Middx. R.), H. J. Evans (Capt., R. War. R.), W. A. Ecob (Temp. Capt., Yorks. R.), G. Goodwin (Capt., Suff. R.); April 1st. F. Hill (Temp. Capt., Gen. List), and to be graded for pay as Staff Capt.; May 6th. G. R. Kevill-Davies (Capt., D. Gds.), W. J. King (Capt., R. Mun. Fus.), G. Mitchell (Capt. and Qrmr., Rif. Bde.), J. B. Morgan (Capt., Suff. R.), H. K. Pearce (Capt., Lond. R.), P. G. Pullon (Capt., Ches. R., T.F.), H. B. S. Stephenson (Capt., R. Muns. Fus., S.R.), W. M. Urquhart, M.C. (Capt., R. Sco., T.F.); April 1st. A. Toomey (Capt. and Qrmr., Gen. List, T.F.); April 29th. J. G. Robinson (Capt., Lond. R., T.F.); June 1st. H. W. Morgan (Capt., K.R.R.C.); June 20th. H. T. Holdstock, M.C. (Temp. Capt., York. L.I.); July 2nd. A. Pantin (Temp. Capt., North'd Fus.); July 13th.

J. J. Metcalfe (Capt. and Qrmr., Gen. List) is granted a temp. commn. as Capt.; May 30th (substituted for notification in *Gazette* Sept. 17th).

Capt. F. Fernihough, M.C., to be Capt., from (A.); Oct. 30th.

Lieuts. to be actg. Cpts. while employed as Cpts. :—G. W. T. Pereira, from (A.), L. Tweedie-Smith; April 1st. (Hon. Capt.) R. C. Green; April 22nd. F. G. C. Fison, J. Hardy; May 21st. F. W. Young; May 28th. J. A. V. Duff; June 5th. N. H. Bartmann, R. S. W. Dickinson, D.S.O., J. Mitchell; June 6th. W. L. Collis; June 21st. F. B. Beddington; June 24th. J. A. S. Trydell; July 21st.

The following are granted temp. commns. as Lieuts., and to be actg. Cpts. while employed as Cpts. :—L. E. Beales (Temp. Lieut., Norf. R.), Hon. F. W. Bampfyde (Lieut., Devon R., S.R.), W. H. T. Collings (Temp. Lieut., K.R.R.C.), R. Dewar (Lieut., Unatt'd List, T.F.), T. B. Duncan, M.C. (Lieut., Soc. Rif.), P. H. Drake-Brockman (Lieut., E. Surr. R.), P. Gurrey (Lieut., Suff. R.), A. T. Gammon (Temp. Lieut., R.W. Surr. R.), A. B. Knapp-Fisher (Lieut., Lond. R., T.F.), L. M. Martin-Jones (Lieut., R.W. Fus.), E. Martin M.C. (Lieut., Lond. R., T.F.), H. T. Pemell (Lieut., Middx. R., S.R.), R. B. L. Pers (Lieut., Shrops. L.I.), F. J. Smith (Lieut. and Qrmr., Spec. List), F. H. Sims (Lieut., R. Fus.), K. S. Sexton (Lieut., W. Rid. R., T.F.), A. S. F. Findall (Temp. Lieut., attd. K.R.R.C.), J. Watts, M.C. (Lieut., R. Muns. Fus.), A. E. Worrall, M.C. (Lieut., K.O.S.B.); April 1st. A. C. Carter (Lieut., Welsh R., T.F.), C. E. Collins (Temp. Lieut., K.R.R.C.); June 1st.

O. C. McCaw (Temp. Sec. Lieut., Middx. R.) is granted a temp. commn. as Sec. Lieut., and to be actg. Capt. whilst employed as Capt.; April 1st, and to be graded for pay as Staff Capt.; July 22nd.

R. H. Grey (Temp. Lieut., R. Fus.) is granted a temp. commn. as Lieut., and to be actg. Capt. whilst employed as Capt.; Sept. 27th (substituted for notification in *Gazette* Oct. 11th).

H. R. King (Capt., Dur. L.I.) is granted a temp. commn. as Lieut., and to be Hon. Capt.; Aug. 8th.

Lieuts. to be Lieuts. :—J. W. Ferguson, from (O.); April 1st. W. A. M. Cox, from (A.); May 9th. T. Letbridge, from (A.); Sept. 12th. (Hon. Capt.) N. McL. Sanders, from (O.); Sept. 21st. A. Fowler, from (A.); Nov. 1st.

The following are granted temp. commns. as Lieuts. :—J. Abbott (Lieut., Leic. R.), J. Arch (Temp. Lieut., attd. R. War. R.), F. B. Beddington (Temp. Lieut., attd. K.R.R.C.), H. E. Burrell (Temp. Lieut., attd. S. Staffs. R.), N. H. Bartmann (Lieut., R. Highrs.), P. Cairns (Lieut., R.F.A., T.F.), W. S. J. H. Coney (Temp. Lieut., attd. Dur. L.I.), W. L. Collins (Temp. Lieut., attd. R. Fus.), A. E. Chilcott (Temp. Lieut., L'pool R.), J. E. Dixon, M.C. (Temp. Lieut., S. Staffs. R.), R. S. W. Dickinson, D.S.O. (Lieut., Cold. Gds., S.R.), J. A. V. Duff (Lieut., Rif. Bde.), R. N. D'O. Earwaker (Lieut., Manch. R., T.F.), J. B. Edgar (Lieut., R. Sco. Fus., T.F.), W. H. Foy (Temp. Lieut., attd. North'd Fus.), F. G. C. Fison (Lieut., Suff. R., T.F.), S. F. Fooks, M.C. (Lieut., Lond. R., T.F.), G. G. S. Fitzgerald (Lieut., Dur. L.I.), R. C. Green (Temp. Capt., attd. Linc. R.), and to be Hon. Capt., S. G. Glover, D.C.M. (R. Irish Fus.), J. Hardy (Lieut., Notts. and Derby R.), C. Jeffs (Lieut., Mdn. R., T.F.), W. J. C. Kendall, M.C. (Temp. Lieut., attd. Lanc. Fus.), J. Mitchell (Lieut., High. L.I., T.F.), F. Morton-Smith (Temp. Lieut., attd. York and Lancs. R.), W. Pilkington, M.C. (Lieut., R.F.A., T.F.), W. A. L. Raeburn (Temp. Lieut., attd. R. W. Surr. R.), F. A. Rhodes (Lieut., W. Rid. R., S.R.), A. Reardon (Lieut., Essex R., T.F.), W. C. Sharpe (Temp. Capt., R. W. Surr. R.), and to be Hon. Capt., W. P. Trotter (Temp. Lieut., attd. R. Fus.).

J. A. S. Trydell (Lieut., Yorks. L.I., A. L. Trainer (Lieut., Lond. R., T.F.), C. W. Wright (Capt. and Qrmr., Gen. List, T.F.), and to be Hon. Capt., G. S. Yeandle (Temp. Lieut., attd. Manch. R.), F. W. Young (Lieut., Worc. R.), April 1st. R. F. Bradford (Temp. Lieut., attd. Dev. R.); J. G. Duff (Lieut., R. Innis. Fus.); April 25th. A. G. Heap (Temp. Lieut., attd. K. L'pool R.); May 14th. E. M. Gardiner, M.C. (Temp. Lieut., L'pool R.); J. W. New (Lieut., Middx. R.); May 22nd. A. W. Coulson (Temp. Lieut., Gen. List); E. F. Drake (Temp. Lieut., attd. Ches. R.); June 10th. H. J. Priestland (Temp. Lieut., N. Lancs. R.); June 24th. A. G. Bird (Lieut., Lond. R., T.F.); H. T. C. Mesny (Lieut., N. Staffs. R.); June 27th. W. C. C. Tower (Lieut., R.E. Kent Yeo., T.F.); July 2nd. R. Hunter (Temp. Capt., W. York. R.), and to be Hon. Capt.; S. McGaw (Lieut., Gord. Highrs., T.F.); July 13th. L. M. Y. Williams (Lieut., Lond. R., T.F.); Aug. 3rd. J. A. Fiddes (Temp. Lieut., Ches. R.); Aug. 24th.

The following are granted temp. commns. as Sec. Lieuts., and to be actg. Lieuts. whilst employed as Lieuts. :—T. Bullough (Temp. Sec. Lieut., R. Fus.); E. S. Clarkson (Sec. Lieut., K.R.R.C., S.R.); V. M. McMahon, M.C. (Sec. Lieut., R. Irish R.); E. P. Moxey (Sec. Lieut., S.W. Bord.); W. J. T. Mardon (Sec. Lieut., Glouc. R., T.F.); J. Nowell (Sec. Lieut., Worcs. R.), W. H. Nankivell (Sec. Lieut., Essex R., T.F.); J. Rymer (Temp. Sec. Lieut., York. L.I.); B. W. Swan (Temp. Sec. Lieut., Worc. R.); W. Spink (Temp. Sec. Lieut., M.G.C.); G. E. Tune (Temp. Sec. Lieut., attd. York and Lancs. R.); G. E. Valentine (Sec. Lieut., Glouc. R., T.F.); April 1st. T. L. Davies (Sec. Lieut., Drag. Gds.); April 25th. M. E. Dunham (Sec. Lieut., Berks. R.); May 13th. H. Salmon (Temp. Sec. Lieut., Yorks. R.); June 10th. A. E. Holton (Temp. Sec. Lieut., Rif. Bde.); F. V. Plant (Temp. Sec. Lieut., Rif. Bde.); July 12th. T. J. M. Davies, Sec. Lieut., Welsh R., S.R.); W. F. Mackenzie (Temp. Sec. Lieut., Sco. Rif.); July 6th. H. W. L. Tottenham (Temp. Sec. Lieut., Rif. Bde.); July 13th. P. T. Bond (Sec. Lieut., Linc. R., T.F.); July 16th. M. Poole-Connor (Temp. Sec. Lieut., K.R.R.C.); July 27th. J. Redmond, M.C. (Sec. Lieut., R. Irish R.); Aug. 3rd.

Sec. Lieuts. to be actg. Lieuts. whilst employed as Lieuts. :—C. E. Haines; April 1st. H. T. Weston; May 22nd. S. U. Dent; June 10th. G. R. Neal; June 20th. E. A. Woods; July 1st. P. Fearnley, G. J. Mordaunt; Aug. 24th. (Hon. Lieut.) A. R. Evers, from (O.); Oct. 12th.

H. D. Lumb is granted a temp. commn. as Sec. Lieut., and to be actg. Lieut. while specially employed; Nov. 4th.

Sec. Lieut. (Hon. Lieut.) W. Butler to be actg. Lieut. while specially employed; Oct. 16th.

Sec. Lieut. C. E. Haines (late R.F.C., Gen. List) on prob. is confirmed in his rank as Sec. Lieut.; April 1st.

The following are granted temp. commns. as Sec. Lieuts. :—D. A. Recorder (Temp. Lieut., attd. K.R.R.C.), and to be Hon. Lieut.; July 1st. C. S. Marriott (Temp. Lieut., attd. Lancs. Fus.), and to be Hon. Lieut., C. S. M. Weldon (Temp. Sec. Lieut., attd. Yorks. R.); July 12th. G. Deacock; Oct. 15th. A. H. Jackson; Oct. 30th. W. N. Lancaster (late Lieut., Aus. F.C.), and to be Hon. Lieut.; Nov. 1st. A. E. Chester, C. G. Kemp; Nov. 4th.

Lieut. R. C. Vincent (Lieut., Lond. R.) relinquishes his commn. on account of ill-health; Nov. 9th.

The following Sec. Lieuts. relinquish their commns. on account of ill-health and are granted the hon. rank of Sec. Lieut. :—R. L. Low, F. Moss, T. T. Reeves; Nov. 9th.

The following Sec. Lieuts. resign their commns. :—W. B. Middleton, and is granted the hon. rank of Sec. Lieut., A. W. S. Youngson; Nov. 9th.

Lieut. H. M. Gibbon resigns his commn., being physically unsuited for the duties of Pilot or Observer; Nov. 9th.

The following Sec. Lieuts. resign their commns., being physically unsuited for the duties of Pilots or Observers :—G. N. Campbell, J. Davenport; Nov. 9th. B. L. Levi, and is granted the hon. rank of Sec. Lieut.; F. W. White.

The date of appointment of Maj. (actg. Lieut.-Col.) R. M. R. Lamb, D.S.O., is April 13th, and not as stated in *Gazette* Sept. 13th.

Technical Branch.

Maj. W. J. S. Lockyer to be Maj., from (Ad.); Oct. 25th.

G. K. Greig (Lieut., R.N.V.R.) is granted a temp. commn. as Capt.; Sept. 2nd.

Lieut. W. Douglas to be actg. Capt. while employed as Capt.; Aug. 31st.

Lieut. H. E. L. Pilbrow to be Capt.; Nov. 8th.

Lieuts. to be Lieuts. :—R. Elcock from (Ad.); July 18th. R. M. Knowles, M.C., from (Ad.); Aug. 6th. F. C. Elstob, from (O.); Oct. 16th.

Sec. Lieut. (Hon. Lieut.) G. F. Antill to be actg. Lieut. while employed as Lieut.; July 11th.

G. W. Hipsley (Lieut., R.E., T.F.) is granted a temp. commn. as Lieut.; Oct. 10th.

The following are granted temp. commns. as Sec. Lieuts. :—H. McK. Barry; Oct. 19th. F. S. Rishworth; Nov. 6th.

Capt. H. E. L. Pilbrow relinquishes his commn. on account of ill-health contracted on active service, and is granted the hon. rank of Capt.; Nov. 9th.

Lieut. G. Shepherd (Lieut., Oxf. and Bucks L.I.) relinquishes his commn. on account of ill-health; Nov. 9th.

Sec. Lieut. (Hon. Lieut.) H. V. Gray is removed from the Royal Air Force; Oct. 22nd.

The notification in *Gazette* Aug. 16th concerning Lieut. J. P. D. Maclagen is cancelled.

Medical Branch.

F. F. Muecke (Temp. Maj.) R.A.M.C. is granted a temp. commn. as Maj. and to be actg. Lieut.-Col. whilst employed as Lieut.-Col., April 1st, with seniority next below T. Haggerston (substituted for notification in *Gazette* May 28th).

The following are granted temp. commns. as Cpts. :—G. C. Hall (Surgeon Capt., Ret., I.M.S.); Nov. 4th. R. J. Aherne (late Temp. Capt., R.A.M.C.); Nov. 7th.

E. T. McElligott is granted a temp. commn. as Lieut.; Nov. 4th.

The initials of Lieut. N. L. Smallbone are as now described, and not as stated in *Gazette* June 28th.

Memorandum.

Lieut. J. H. Thompson to be actg. Capt. (without pay and allowances of that rank whilst specially employed); Nov. 8th.

Royal Flying Corps (Military Wing).

London Gazette Supplement, November 7th.

Squadron Commander.—Lieut. (Temp. Capt.) E. E. Hodgson, S.R., from a Flight Comdr., and to be Temp. Maj. while so employed; July 10th, 1917.

Flying Officer (Observer).—Lieut. F. W. Irving, Lan. Fus., T.F., and to be seed; March 25th.

Balloon Officer.—Lieut. C. H. Archer, R.F.A., S.R.; March 21st.

The Aircraft Woodworkers' Strike.

AT a mass meeting of woodworkers in the Mersey area on November 3rd, when by 1,694 votes to 825 it was decided to resume work on the following day, it was announced that the Ministry of Munitions had agreed to suspend the

bonus scheme temporarily so far as the woodworkers were concerned to enable the matter to be considered further. Pending the decision on the Aintree bonus, the men concerned will work on the appropriate district time rate.

AVIATION IN PARLIAMENT.

R.A.F. Decorations and Chevrons

Sir CHARLES HENRY, in the House of Commons on November 4th, asked the Under-Secretary of State to the Air Ministry if he will state if members of the Royal Air Force who have been transferred from other naval and military services and who adopt the new uniform of the Royal Air Force are allowed to wear on their new uniforms military or naval decorations previously awarded; and, if so, why they are not permitted to wear their service chevrons?

Maj. Baird: The answer to the first part of the question is in the affirmative. Officers and men are allowed to wear chevrons, earned either in the Navy or the Army, on their naval or military uniforms. No Regulations are in existence as to the granting of chevrons to airmen, therefore they are not entitled to wear chevrons on Air Force uniforms. Approval is being sought for a scheme which will enable chevrons to be worn upon Air Force uniform on terms consistent, so far as possible, with the differences between the conditions of service in the Navy, the Army, and the Royal Air Force respectively.

Flying Over Towns Prohibited

Col. FABER asked the Under-Secretary of State to the Air Ministry if he will consider the advisability of forbidding flying machines from cruising just above towns and villages, seeing the amount of sickness that now prevails?

Maj. BAIRD: The existing Instructions on this point provide against flying being practised under conditions likely to cause any avoidable inconvenience or annoyance to inhabitants of towns or other centres of population.

International Law and Aviation

Mr. JOYNSON-HICKS, on November 5th, asked the Prime Minister whether he will consider the desirability of approaching our Allies with a view to an immediate conference to settle international law on the subject of aviation, so that when the war is over there may be no obstacle to free civilian transport between the Allied countries?

Mr. Bonar Law: This matter is engaging attention, and the Foreign Secretary hopes shortly to be in a position to lay proposals before our Allies.

R.A.F. Decorations and Chevrons

Mr. JOYNSON-HICKS asked the Under-Secretary of State to the Air Ministry (1) On what date and by whose authority the order declining to allow members of the Royal Air Force to wear chevrons was issued; (2) whether a number of officers and men who, while in His Majesty's Army, earned and wore chevrons by reason of fighting at the front, now that they have transferred to the Royal Air Force have been ordered to remove such chevrons; and, if so, will he say by what authority the Air Council or any officer orders badges of honour awarded by His Majesty to be removed; and (3) whether officers and men of the Royal Flying Corps and the Royal Naval Air Service, since transferred to the Royal Air Force, having earned and worn chevrons for work in France are now ordered to take them off?

The Under-Secretary of State to the Air Ministry (Maj. Baird): I would refer my hon. friend to the answer which I gave yesterday to the hon. member for the Wellington Division of Shropshire, of which I am sending him a copy.

Civilian Aerial Transport

Mr. JOYNSON-HICKS asked the Under-Secretary of State to the Air Ministry whether the Air Council has taken into consideration the Report of the Civilian Aerial Transport Committee; and whether they are in a position, when the war comes to an end, to enable civilian transport to at once commence?

Maj. Baird: Yes, sir; the Report has been considered by the Air Council. Action is being taken with a view to forwarding legislation, international agreements, and other measures requisite in connection with civil aerial transport at home and abroad at the end of the war.

Cadet Schools

Sir J. D. REES, on November 6th, asked the Under-Secretary of State for War whether existing cadet schools' battalions, and corps will be abolished when the war ends or within any already ascertained period; if so, within what period after the war; and whether information on this subject will be made public as soon as possible, in view of the occupation of private buildings, for housing such schools, battalions, and corps, and in view of the future destination and disposal of the cadets concerned?

Mr. Macpherson: I am afraid it is not possible to say at present when officer cadet schools will be abolished, as it must depend on the requirements of the Army. The whole matter is, however, being closely watched, and notice of the abolition of the schools will be given as early as possible both to the cadets and the owners of private buildings concerned.

Sir J. D. REES: Has the right hon. gentleman any notion when he will be able to make a statement?

Mr. Macpherson: As soon as I possibly can.

Conditions at Blandford Camp

Mr. W. ANDERSON and Sir GEORGE GREENWOOD asked questions regarding the conditions at Blandford Camp.

Maj. Baird: As stated in answer to a question by my hon. friend the member for Watford on October 30th, the conditions at Blandford Camp have been engaging the close attention of the Air Council. Personal inspections have been made by Sir Humphrey Rolleston, a member of the Medical Administrative Committee, by the Inspector of Hospitals, and by the Medical Administrator. Additional doctors and nurses have been sent there, the hospital accommodation has been materially extended, and the camp has been kept well supplied with all necessary medical stores and equipment.

The total number of men who now are, or have been, stationed at Blandford from September 21st to November 2nd, 1918, is 32,593. The total number of deaths has been 78. Of these, 77 were due to influenza or pneumonia consequent on influenza. The percentage of deaths is, therefore, .24 per cent., and the weekly average 13.5. The average daily number of men under canvas for this period has been 6,611. The number has been steadily reduced, and it is hoped that all the men will be in buildings by to-night. From now on no recruits will be put under canvas.

The regulation number of men sleeping in a tent is 10, and in no case have there been more than 10 in a tent at Blandford; the usual number is eight. Boards are supplied to all men sleeping in tents. There are 10 drying rooms, one for each section of the camp. In huts each man has four blankets; men

under canvas have six. Each man has two sets of clothing. If one set gets wet through, he can change into dry clothing and have his wet ones dried in the drying rooms.

It is clearly impossible to give preferential treatment to recruits who may have previously belonged to the professional classes. No discrimination is made in this respect.

The number of men awaiting invaliding boards, sufficient from the diseases mentioned in the question by my hon. friend the member for Peterborough, is 1,500. These men are now all in huts.

Weyhill Aerodrome

Mr. Peto asked the Financial Secretary to the War Office whether he is aware that at the aerodrome at Weyhill, near Andover, a 2-foot gauge line has been constructed for a distance of about 300 yards on level ground from the sidings constructed at the railway; whether it involves delay of railway goods trucks and the unloading of goods for the aerodrome to the small 2-foot gauge stock; if he can explain the reason why a full gauge line should not have been laid for this short distance; and whether it is proposed to now rectify this defect?

Maj. Baird: A temporary 2-foot gauge track, about 600 yards long, has been laid. I am informed that no delay of railway trucks is involved. Apart from the difficulty of procuring standard track, it was not considered necessary to extend, as from whatever point the line might have finished, it would still have been necessary to tranship into 2-foot gauge wagons, so that the building materials brought by rail could be distributed on to the site of the buildings under construction. The siding will not be required for the aerodrome after the construction work, which is approaching completion, is finished.

Blandford Camp

Mr. Peto asked the Financial Secretary to the War Office whether a light railway is going to be constructed from Blandford station to the military camp on the downs near Blandford; and whether, in the course of the War, ten times the cost of such a railway has been spent in road haulage and road repairs?

Mr. Macpherson: This camp is now under the control of the Air Ministry, who, I understand, have put in hand the construction of a railway of standard gauge. I regret I have no information as to the amount expended on road haulage, but the expenditure on the repair and maintenance of the approach roads from Blandford station during the period that the camp was under War Office control amounted to £1,324. Since the Air Ministry took over the camp I understand that further expenditure has been incurred owing to the damage to the roads by the continuous heavy construction traffic. A new road is also being constructed to reduce the distance from the station to the camp by about 3 miles, and to relieve the Blandford-Salisbury road of the heavy traffic which has recently congested it.

Air Raid Damage and Cost of Repairs

Capt. BARNETT asked the Chancellor of the Exchequer whether, having regard to the fact that the damage done by enemy air raids to public works, sewers, &c., has varied greatly in different districts, he will reconsider the Treasury decision to throw the whole cost of repairing such damage upon local authorities?

Mr. Bonar Law: The matter has been further considered, but I have felt bound to adhere to the previous decision. I do not think that it would be right to transfer this expenditure from the local authorities to the Exchequer.

Lighting Restrictions

Capt. BARNETT asked the Home Secretary whether, in view of the marked reduction in street lighting, he will consider the desirability of relaxing the present Regulations for the shading of lights in the windows of shops and private houses, especially during those hours of the evening in which the streets are crowded by people returning to their homes?

Sir G. Cave: I am informed by the military authorities that it is not desirable to relax the requirements as to the shading of lights in shops and houses at present, but where the police find that more light is required for safety the necessary steps will be taken to improve the street lighting. I would point out that, apart from air-raid precautions, the use of lights in shop windows is prohibited on grounds of economy by an Order of the Board of Trade.

Air Raids and Bombardment (Insurance)

Sir ARTHUR FELL, on November 7th, asked the Prime Minister if, under the present circumstances, he will now relieve householders and owners of property from the necessity of insuring their houses against damage by air raids and bombardment, having regard to the fact that the insurance under the present scheme has to be paid for 12 months, whilst the risk may be for a short period only, and to the fact that the Government already undertakes the liability up to £500?

Mr. Bonar Law: The question whether the existing aircraft insurance scheme should be modified, either as regards rates or conditions, is being considered, and an announcement will be made as soon as possible.

Low Flying over Oxford

Mr. MARKIOTT asked the Under-Secretary of State to the Air Ministry whether in the Oxford district four fatal accidents in the Royal Air Force were reported in the week ending August 24th, one in the week ending October 5th, and two in the week ending October 12th; and whether the orders against low flying over the city of Oxford are being obeyed?

Maj. Baird: Seven fatal accidents have occurred in the past three months at air stations in the district round Oxford in addition to the three accidents which, as I have informed my hon. friend on October 17th, have occurred at Oxford itself. The orders against low flying over the city are impressed upon all concerned, and severe disciplinary action has been taken in two recent cases in which they have been infringed. Public attention is being drawn to the orders so that infringements may be reported as fully as possible. The Air Council would be grateful if members of the public would assist them in the matter by reporting the number painted in large block figures on the wings of any low-flying aeroplane.

Village Clocks (Chiming)

Maj. HUNT asked the Home Secretary whether the village clocks in country districts may now be again allowed to strike?

Sir G. Cave: I will consider the point and communicate with my hon. friend.

under the skin of the upper arm. The reaction following inoculation will, it is anticipated, in the majority of cases, be trivial or non-existent, but it is considered to be of importance that a period of from 24 to 38 hours light duty should be given after each inoculation. Nobody suffering from acute catarrh or in the early stages of influenza is to be inoculated.

The Air Ministry and Influenza.

As a result of a conference of experts held recently at Adastral House, the Air Ministry have circularized officers and other ranks at the Ministry, offering them the opportunity of trying the experiment of inoculation with anti-influenza vaccine.

Two injections, at an interval of 10 days, will be given,



AIRCRAFT WORK AT THE FRONT.

OFFICIAL INFORMATION

British

General Headquarters, November 5th.
 "On November 4th fine weather enabled our squadrons to maintain intense activity along the whole front, although a strong south-westerly wind hampered long-distance operations. Co-operating with our attacking troops, our low-flying machines caused great havoc in the ranks of the retreating enemy with bombs and machine-gun fire, scattering his infantry, stampeding his horses, and ditching his guns and transport. In addition, the Headquarters concerned were kept informed of the movements of our troops and the dispositions of the enemy. The valuable reconnaissance and photographic work which was accomplished, and the accurate observation of our artillery fire both by aeroplanes and balloons, had a share in the success of the operations. Meanwhile, our bombing machines attacked important railway junctions and aerodromes. Many direct hits were observed on railways, and at one aerodrome, which was attacked from a very low altitude, three hangars were set on fire and destroyed. In all, nearly 33 tons of bombs were dropped during the day. The enemy showed great activity in the air, and heavy fighting ensued. As a result, 40 of his machines were shot down and 15 were driven down out of control. Five German balloons were destroyed. Thirty-five of our machines are reported missing. Our operations were continued at night, and nearly 14 tons of bombs were dropped on important railway junctions and stations. Direct hits were seen to cause considerable damage. These operations were discontinued early, as the wind increased greatly. Four of our machines failed to return."

Paris, November 5th.
 "During yesterday our aerial reconnaissances enabled us to follow the retreating movement of the Germans. By day the bombing squadrons dropped over 38 tons of projectiles and fired 16,000 cartridges on the convoys and concentrations of troops. In the region of Vendresse-Raucourt, by night, 10½ tons of projectiles were dropped on the stations of Mézières, Mohon, Lumes, Triage, Sedan, Poix, Terron, and Vendresse, in which bursts were observed. It is confirmed that since November 2nd Lieut. Fonck has brought down six enemy aeroplanes, bringing the number of this pilot's victories to 75."

Headquarters R.A.F., Independent Force, November 6th.
 "During the past 24 hours, mist and low clouds have been prevalent, and on the night of the 5th-6th there were also heavy showers of rain. In spite of these conditions, on the afternoon of the 5th our machines attacked a hostile aerodrome at Morhange, obtaining direct hits on the railway and the aerodrome. In the course of fighting one enemy aeroplane was driven down out of control. All our machines returned. On the night of the 5th-6th, our machines attacked the hostile aerodromes at Morhange, Frescaty, Dieuze and Lellingen. Good shooting was obtained. A hangar was set on fire at Morhange. All our machines returned. On the 6th inst. Bühl aerodrome was heavily and successfully attacked. Large numbers of enemy aeroplanes attacked our formations, and in the course of severe fighting three enemy machines were destroyed. Three of our machines are at present unlocated."

General Headquarters, November 6th.
 "On November 5th, in spite of low clouds and continuous rain, our machines in the battle area, flying at a height of about 100 ft., actively co-operated with our advancing troops, bringing back valuable information as to their movements, and reconnoitring the positions held by the enemy. The roads, congested with traffic and infantry in close order, were attacked with machine-gun fire and bombs, and great confusion and heavy casualties were seen to be caused. Over 8½ tons of bombs were dropped during these operations. There was practically no activity on the part of the enemy in the air. One hostile aeroplane which was encountered, was shot down out of control. Three of our machines are missing. No night operations were possible on account of weather conditions."

General Headquarters, November 7th.
 "On November 6th low clouds and continuous rain greatly restricted flying, but some of our machines succeeded in harassing the enemy's troops and transport with bombs and machine-gun fire, dropping over half a ton of bombs and causing casualties and damage. There was no hostile aircraft activity. Two of our machines are missing. No night operations were possible on account of weather conditions."

Headquarters R.A.F., Independent Force, November 7th.
 "In addition to the attacks already reported, our machines on the afternoon of November 6th bombed the factories at Saarbrücken. One direct hit was obtained on the factory and one on the railway sidings, but other results could not be observed. In the course of fighting, two enemy aircraft were destroyed and two more enemy machines were driven down out of control. One of our machines is missing. Also, in addition to the enemy aircraft reported accounted for yesterday, a further two machines were destroyed and one was driven down out of control."

General Headquarters, November 8th.
 "On November 7th, except for a very little low reconnaissance work, no flying operations could be carried out on account of driving mist and rain, which lasted all day."

General Headquarters, November 9th.
 "On November 8th low clouds and continuous rain again greatly curtailed operations. Some valuable low reconnaissance work was completed, the enemy's movements being observed and reported. Nearly three-quarters of a ton of bombs were dropped on the enemy's troops and transport. No hostile machines were seen during the day. One of our machines is missing. At night the weather improved slightly, and some of our night-flying machines were able to attack important railway centres, dropping over 11½ tons of bombs with good effect. All these machines have returned."

General Headquarters, November 10th.
 "On November 9th fine weather enabled our squadrons to maintain great activity along the whole front. A large number of photographs were taken and much valuable reconnaissance work was completed. Our machines continued to harass the columns of the retreating enemy with bombs and machine-gun fire, delaying and disorganising his retreat and returning with useful information. Our bombing squadrons also co-ordinated in the advance

by attacking important railway centres with visibly good results. In all over 13 tons of bombs were dropped. Considering the weather, the enemy's activity in the air was not great. In air fighting 12 German machines were shot down and seven were driven down out of control. One German balloon was shot down in flames. Thirteen of our machines are missing.

"At night our squadrons continued their activity, heavily attacking the important railway junctions of Liege, Louvain, and Charleroi, dropping 26 tons of bombs. Many direct hits were obtained on the permanent way, trains, and station buildings, and several explosions and fires were caused. Two of our machines failed to return."

Headquarters R.A.F., Independent Force, November 10th.
 "On the afternoon of the 9th inst. some of our machines, flying through clouds, carried out individual bombing raids on various railway centres some distance over the lines. These raids were very successful, and were without loss to us. On the morning of the 10th inst. our squadrons heavily attacked the hostile aerodrome at Mormange. Bursts were observed on and near hangars. All our machines returned."

Headquarters R.A.F., Independent Force, November 11th.
 "On the afternoon of the 10th inst., besides the raids already reported, our machines successfully attacked the railway junctions at Ehrange. Results could not be observed. One of our machines is at present unlocated. On the night of the 10th-11th inst. our machines attacked hostile aerodromes at Morhange, Frescaty, and Lellingen, and the railways at Metz-Sablon. Direct hits were obtained at Frescaty and exceptionally good shooting at Morhange, where 10 direct hits on hangars were observed. Three large fires were started and very considerable damage done. All our machines returned."

General Headquarters, November 11th.
 "On November 10th our squadrons continued their work in fine weather, actively co-operating in the general advance and vigorously bombing the enemy's troops and transport. Over 2,000 photographs were taken and a great deal of valuable information was brought in by our reconnaissance machines. More than 19 tons of bombs were dropped during the day. The enemy did not show great activity in the air. In air fighting 16 hostile machines were shot down and one was driven down out of control. In addition, two German machines, standing on an aerodrome were destroyed by bombs dropped from a low altitude. Nine of our machines are missing. At night our bombing operations were continued. Louvain, Namur, Charleroi, and many other important railway centres were attacked with excellent results. In one case an ammunition train was blown up and fires and explosions were caused on the sidings in which it was standing. In all over 20 tons of bombs were dropped. All our machines have returned."

French

Paris, November 7th.
 "The bad weather did not prevent our airmen from doing good work during the day of the 6th. Our machines worked in co-operation with our infantry, and attacked with bombs and machine-guns the retreating German columns. Fifteen and a half tons of bombs and 13,000 cartridges were used."

Paris, November 8th.
 "During the fighting of the month of October our anti-aircraft defence force took an important part in the fighting against German aircraft. The mission of the latter was to cover the retreat of the enemy troops and to impede our advance. They showed themselves particularly aggressive, machine-gunning our infantry and our batteries. Thanks to the excellence of their shooting, their skill, and the vigilance of the personnel, our anti-aircraft formations largely contributed to levying a heavy price upon the enemy for his daring tactics. Thirty-five German aeroplanes were brought down by our posts and our auto-cannon, and four machines were so damaged that they were obliged to abandon their mission. Special mention is due to the 68th Section of auto-cannon of the 66th Regiment of Artillery, over which a patrol of five Fokkers flew at a low altitude. A veritable battle ensued. The coolness of the gunners under a rain of bombs and machine-gun bullets enabled the gunners to bring down in a few minutes three machines, while a fourth, fleeing before a murderous fire, fell to the ground after being hit by the fire of a neighbouring section."

Paris, November 9th.
 "Despite heavy rains and mist our airmen executed reconnaissance missions and successfully bombed and machine-gunned enemy troops in the vicinity of Montuody."

U.S.A.

Paris, November 5th.
 "Thirty of our bombing planes executed a successful raid on Mouzon and Raucourt this morning, dropping over 2 tons of bombs with good effect. Reconnaissance and pursuit squadrons carried out many successful missions, machine-gunning enemy troops, and greatly assisting the advance of our infantry. Seventeen enemy aeroplanes were shot down, and two enemy balloons burned. Seven of our planes are missing."

Paris, November 6th.
 "During successful air combats yesterday afternoon three additional enemy planes were brought down. All of our machines returned."

Paris, November 8th.
 "Despite adverse weather conditions, our airmen, flying at a height of 100 metres, carried out a number of reconnaissance missions. They bombed and machine-gunned concentrations of enemy troops in the region of Baon and Remoiville, and blew up an ammunition dump at Giberoy. Four enemy balloons were destroyed, and three enemy aeroplanes were shot down during the day. One of our planes is missing."

Belgium

Havre, November 5th.
 "On Sunday, a German aeroplane, hit by our anti-aircraft artillery, fell disabled in the enemy lines."

German

Berlin, November 6th.
 "On November 4th we shot down 45 enemy aeroplanes. First Lieut. Rolle and Lieut. Konnecke obtained their 35th aerial victories."

A New Height Record.

The Aero Club of America has announced that the world's record for high flight, 28,900 ft. above sea level, made by Capt. R. W. Schroeder in a Bristol fighter, with a 300-h.p. Hispano-Suiza motor, at the Wilbur Wright field, near Dayton, Ohio, on September 18th, 1918, has been confirmed and established by the Club and the U.S. Government.

The previous American altitude record was made by Caleb Bragg at Mineola on September 20th, 1917, when he reached a height of 20,250 ft. in a Wright-Martin model V machine. The last previous world's record of the Internationale Aéronautique Federation was made by G. Legagneux in France on December 28th, 1913, when he attained a height of 20,258 ft.

SIDE-WINDS

QUITE a useful device to have in a workshop is the Universal Ball and Socket Swivelling Vice shown in our illustration, ensuring as it does a maximum amount of convenience besides being a time-saver. It is a speciality of Messrs. Wadkin and Co., of North Evington, Leicester, who have been supplying quite a large number for use in aircraft factories. Substantially made, it can be quickly fixed to bench, wall or pillar, and is quite rigid under any condition, while the ball and socket enable the vice jaws to be put in exactly the position most suitable for the work in hand. The ball is



The Wadkin
universal
swivelling
vice

accurately machined and carefully fitted into its socket seating in the base, which is split and fitted with a locking handle, so arranged that less than one-half turn holds the ball sufficiently rigid to enable quite heavy work to be carried out without any fear of it slipping. The vice-jaws—which are opened and closed by a square threaded steel screw—together with the stem are made, we understand, from a special quality of steel alloy, and a hardened steel grip plate is fitted to each jaw. It is made in one size, with jaws 4 ins. wide opening out to 3 ins., and the weight is 40 lbs.

A CASE of importance to the occupiers of manufacturing premises containing machinery was decided on November 5th at the Middlesex County Quarter Sessions. The appellants were Messrs. S. Smith and Sons (Motor Accessories), Ltd., the well-known makers of motor accessories, who were appealing against the assessment to the poor rate of their works, and the respondents were the Assessment Committee of the parish of Willesden.

The appeal was in respect of a rate made in April, 1917, and chargeable in two instalments, the assessments being for the first instalment gross estimated rental £3,645, rateable value £2,430, and for the second instalment gross estimated rental £4,720, rateable value £3,147. Each of these assessments was objected to on the ground that in arriving at the assessment the machinery upon the premises had been rated and that the assessments were thereby excessive and not in accordance with the legal decisions on this question. The valuers for the Assessment Committee claimed that by the decision of the House of Lords in the case of Kirby v. Hunslet (1905) they were entitled to value the engineering machinery as if it were rateable.

The Court decided against the Assessment Committee and reduced the rateable value for the first instalment of the rate from £2,430 to £1,437, and for the second instalment from £3,147 to £1,915. Among the rating surveyors engaged as witnesses for the appellants were Mr. H. E. Elkins, of Messrs. Humphreys-Davies and Co., and Mr. H. H. Fuller.

PUBLICATIONS RECEIVED.

Royal Automobile Club Year Book: 1918. London: The Royal Automobile Club, Pall Mall. Price 5s. net.

Punch Almanack: 1919. London: 10, Bouverie Street, E.C.4. Price 1s. net.

The Navy Eternal. Bartimeus. Hodder and Stoughton. Price 6s. net.

NOTICE TO ADVERTISERS

In order that "FLIGHT" may continue to be published at the usual time, it is now necessary to close for Press earlier. All Advertisement Copy and Blocks must be delivered at the Offices of "FLIGHT," 36, Great Queen Street, Kingsway, W.C. 2, not later than 12 o'clock on Saturday in each week for the following week's issue.

COMPANY MATTERS

Humber, Ltd.

THE directors of Humber, Ltd., announce that in consequence of unusual difficulties experienced in the valuation of stock and of the unascertained liability in respect of excess profits duty, they are unable at present to place before shareholders a reliable account giving the result of the company's operations for the year ended August 7th. They are, however, able to state that a satisfactory profit has been earned which justifies the payment of a dividend of 6 per cent. on both classes of shares. The full accounts will be furnished at an adjourned meeting as soon as possible after the foregoing difficulties have been overcome. Meeting, Offices, Stoke, Coventry, 20th inst., noon.

NEW COMPANIES REGISTERED

A. CAMDEN PRATT AND CO., LTD.—Capital £20,000, in 12,000 10 per cent. cumulative preference shares of £1 each and 64,000 ordinary shares of 2s. 6d. each. Aeronautical, marine and general engineers, &c. First directors:—A. Camden Pratt, A.M.I.C.E., and Capt. A. Payze.

MERO AIRCRAFT CO., LTD., 8, Academy Buildings, Fanshaw Street, N.1.—Capital £5,000, in £1 shares. Aeronautical constructors and general engineers, &c. First directors: J. Block (Russian), S. Merefolksky (British, of Russian origin), M. Freeman (British, of Russian origin).

TAXI-PLANE, LTD., Castle Buildings, Whittaker Avenue, Richmond, Surrey.—Capital, £1,000, in £1 shares. To establish, maintain and work an air line or lines for the conveyance of passengers, mails and goods. First director: J. A. Whitehead.

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Patent Specifications Published

Abbreviations:—cyl. = cylinder; I.C. = internal combustion; m. = motors.

Applied for in 1917

The numbers in brackets are those under which the Specifications will be printed and abridged, &c.

Published November 14th, 1918.

820. LANG PROPELLER, LTD., and C. A. LAING. Aeroplane propellers. (119,967.)
1,373. BLACKBURN AEROPLANE AND MOTOR CO. and H. BOOTH. Tail fins of aeroplanes, &c. (119,974.)

If you require anything pertaining to aviation, study "FLIGHT'S" Buyers' Guide and Trade Directory, which appears in our advertisement pages each week (see pages lvii, lviii, lix and lx).

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